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To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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THE LARGEST FLOATING DOCK.

The largest floating dock ever constructed has been completed by the firm of Swan & Hunter, Wallsend-on-Tyne, England, and delivered after an eight days' tow to the Vulcan Co. station.

In length, the new dock is 510 feet, being 60 feet longer than the now famous Havana dock, while its width is 111 feet, and the height from bottom of pontoon to top of walls 43 feet 7 inches, the internal width being sufficient to allow of vessels up to 82 feet beam being docked, while the depth over the keel blocks is 24 feet. The maximum lifting power is over 12,000 tons, and the dock as a whole is divided into thirty-eight water-tight compartments, each filled or emptied by separate valves controlled from a valve house on the top of each wall. The pumping machinery consists of two sets of compound engines of 125 h. p. each, and two marine-type boilers. Each engine drives two 15 inch centrifugal pumps, and, working at its normal speed, the pumping plant is capable of lifting a ship of about 11,000 tons displacement in two and a quarter hours.

As the dock is a "self-docker," access to all the external surfaces is possible, whether for painting or repairs, there being three pontoons, the center one 240 feet long, and the end ones each 135 feet long. Besides being the largest pontoon in the world a record has been made in the time of construction, as the building occupied only six months, the launching, equipping and delivery across the North sea or German ocean being all covered in a period of seven months, though the general and special machinery, boilers, etc., were sub-contracted for with other firms. It seems hardly necessary to add that two or three of these docks would be found invaluable to the United States if the Navy Department had control of such at this time. It is known, however, that measures are now being taken to provide such for the use of national tonnage and so constructed that they can be towed from point to point should any emergency arise for such a transfer.

SOUND.

A sound is due to the sound-waves set up in the air by the kinetic energy due to some vibrating body, and these waves are propagated in still air about 1,125 feet per second. Sound-waves are longitudinal, vibrating in a direction parallel to that of propagation, and are due to alternate condensations and rarefactions of the transmitting medium.

The difference between a noise and a musical sound is that the latter has periodic and regular vibration, while that of a noise is uneven and irregular. A tuning fork is adopted as a standard of musical sound, as it is unaffected by anything but decided change in temperature.

A sounding-box below the fork greatly reinforces the sound, because of resonance. The ability of one vibrating

body to set a second one in vibration, which one has nearly the same period, is called sympathetic vibration of the two, or resonance.

Columns of air of different lengths differ in resonance greatly.

A sound is defined with reference to three different characteristics:

1. Loudness—depending on the amplitude of the vibration.
2. Pitch—depending on the frequency of vibration.
3. Quality or Timbre—depending upon the shape of the wave-form.

REPORT OF FREIGHT AND PASSENGER TRAFFIC

TO AND FROM LAKE SUPERIOR FOR THE MONTH OF JUNE, 1898, INCLUDING STATISTICS OF THE UNITED STATES AND CANADIAN CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO.

EAST BOUND.			
ITEMS.	US CANAL	CANAD'N CANAL	TOTAL
Copper, net tons.....	18,238	516	18,754
Grain, bushels.....	1,612,800	237,680	1,850,480
Building Stone, net tons.....	2,630		2,630
Flour, barrels.....	519,545	56,013	575,558
Iron ore, net tons.....	1,426,469	471,484	1,897,953
Iron, Pig, net tons.....	3,437		3,437
Lumber, M. ft. B. M.....	118,824	2,075	120,899
Silver Ore, net tons.....			
Wheat, bushels.....	1,325,558	665,684	1,991,242
Unclass'd Freight, net tons.....	28,452	5,111	33,563
Passengers, number.....	1,338	462	1,800

WEST BOUND.			
ITEMS.	US CANAL	CANAD'N CANAL	TOTAL
Coal, (hard) net tons.....	46,570	13,265	59,835
Coal, (soft) net tons.....	377,550	97,769	475,319
Flour, barrels.....	660		660
Grain, bushels.....	4,000		4,000
Manufactured Iron, net tons..	29,527	1,792	31,319
Salt, barrels.....	66,368	3,000	69,368
Unclass'd Freight net tons...	59,416	4,538	63,954
Passengers, number.....	2,007	384	2,391

East Bound Freight, net tons.....2,317,181
West Bound Freight, net tons.....632,284

Total.....2,949,465
Total Craft, United States.....1,973
Total Craft, Canadian.....595

Total.....2,568
Total Registered Tonnage, United States.....2,132,092
Total Registered Tonnage, Canadian.....491,891

Total.....2,623,983

ELECTRICITY has become so important a factor in the apparatus of war, especially in naval service, that the trained electrician is as indispensable as an engineer or a gunner. In the matter of harbor or coast defense, the possibilities of electricity may be one of the surprises of the future, and the electrician in a fort or battery will be in demand on land as on sea. It is gratifying to note in this connection that in the formation of an electrical corps, leave of absence has been granted by employers to such of their men as choose to offer their services to the government, with full pay for a period of six months or more. It has also been suggested that electric experts in our universities and colleges should organize as a supplementary body, to give advice when such is needed relating to the utilization of electricity in naval and military operations. It may be that the electric spark will yet prove a mightier force than ever designed by a Krupp or a Maxim.

LIGHTNING CONDUCTORS.

Thomas A. Edison writes as follows to one of the editors of Popular Science News who had asked him whether lightning-rods really furnish any security to buildings. "There is no doubt whatever that the lightning-rods are a source of great protection when buildings are properly equipped with them. In doing this it is necessary to have metal of good conductivity and a perfect connection with the earth at the bottom of the rod. If you will refer to a book published by Sir William Snow Harris, who first introduced lightning-rods in the British navy and mercantile marine, you will find this subject discussed at length. Before the introduction of lightning-rods in the British navy, disasters at sea were quite frequent, and the subject of protecting their ships from this element of danger presented itself in a very serious light to British naval officers. When Harris proposed equipping these ships with lightning-rods, he was almost alone in the belief that they would afford such protection as was desired. After a great deal of trouble he succeeded in having them adopted, since which I do not think there has been a single serious disaster from lightning in the British navy, which is conclusive that Harris's theory was correct. The same applies to buildings of an inflammable nature erected on land; and when these are properly supplied with a sufficient number of lightning-rods, dependent upon their size and the extent of ground covered by them, I believe they are absolutely safe from all danger."

BILL OF LADING FOR SLAVES.

A bill of lading for slaves is a curiosity in its way. The following extract is from one dated Feb. 1, 1766: "Shipped, by the grace of God, in good order and well conditioned, by James—, in and upon the good ship called Mary Borough, whereof is master, under God, for this present voyage, Captain David Morton, and now riding an anchor at the Barr of Senegal, and by God's grace bound for Georgey, in South Carolina, to say, twenty-four prime slaves, six prime women slaves," etc. It ends with the pious wish that "God send the good ship to her desired port in safety. Amen."

However impious it may appear to us to associate the name of God with the iniquitous traffic, still it was looked upon by many as a divine institution, directly sanctioned by the bible. The famous slave-trading captain, John Newton, afterward to be Rev. John Newton, of Olney, hymn writer, and friend of Cowper, did by no means see it to be his duty to change his profession immediately after his conversion, though he ultimately became an abolitionist. He carried on slave trading for years after he was a devout Christian, giving thanks to the Liverpool churches for the success of his last venture, and imploring God's blessing on his next.—Chambers' Journal.

"FIGHTING BOB" A WELSHMAN.

One of the most distinguished captains in the American navy, "Fighting" Capt. Bob Evans, of the Iowa, is a Welshman, whose parents are Merionethshire, North Wales, folk. His father, Capt. David Evans, a native of Talsarnau, near Harlech, was an uncle of Jones Morris, Portmadoc; J. Jones Morris, the well-known Eisteddfodwr; T. E. Morris, B. A., I. L. B., who has been inquiring into the charities of Anglesey and Carnarvonshire, and David Morris, of Liverpool. Capt. David Evans' wife was Miss Lloyd, daughter of Capt. Richard Lloyd, of the Abeona, Barmouth.—Liverpool Mercury.

HAVANA was formerly celebrated for its shipbuilding, and for a long time Cuban yards supplied Spain with the chief part of her fleet. Between 1724 and 1796 the shipyards of Havana supplied Spain with 51 ships of the line, 22 frigates, besides smaller craft to the amount in all of 110 vessels, carrying 5,068 guns, six having 100 guns each.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

The Dunham line will name a rebuilt tug J. C. Evans, in honor of the agent of the Anchor line at this port.

Charters for Lake Ontario ruled this week at $1\frac{1}{2}$ cents on corn and $\frac{3}{4}$ of a cent to Buffalo, the latter chiefly in small lots and such as to be carried by the line boats.

Competition in the towing business is brisk and tugs go a long way down the lake seeking tows. Towing companies feel the dullness in the lumber trade and are ready for any improvement that may come along.

J. J. Rardon & Co. chartered the steamers Thomas Davidson and Phenix for corn to Buffalo at $\frac{3}{4}$ of a cent, the schooner F. D. Ewen for corn to Lake Ontario at $1\frac{1}{2}$ cents free of tolls, the steamer Walter Vail for clipped oats to Buffalo at $\frac{3}{4}$ of a cent.

At the Chicago Ship Building Co.'s shipyard the steamer Saxon was in dock and received 21 new bottom plates and some new floors, the barge Magna received a new rudder, the schooner Lucia A. Simpson a new centerboard, and the schooner Typo some calking.

Two cargoes were loaded at South Chicago this week on the Toltec and Miztec, en route to Japan, via Duluth, the cargoes started on the way, not the lake craft, for the steel rails will be carried west on other steel rails, and trans-shipped at a Puget Sound port for delivery to the Japs.

The steamer Viking got tangled up with Chicago avenue bridge on Friday last, and her upper works forward were damaged. As usual it was the fault of the bridge tender, so that the city will be obliged to foot the bills incurred on account of detention and necessary repairs to the Viking.

August Foss was recently appointed weighmaster by the directors of the Chicago Board of Trade to fill the vacancy caused through the death of Thos. H. Foster, the former weighmaster. George Le Bean and Hugh J. Kelly were also aspirants for the office but were counted out after a spirited competition.

At the Chicago floating dock the tug Black Ball is on for overhauling and calking, the tug James McGordon was on for some new bottom plank and a general overhauling and refastening, the tug Commodore for bottom calking and repairs to stern bearing, and the steamer Cyclone for repairs to stern bearing and some calking.

The cool weather of the past week has interfered greatly with the excursion business at this port, and checked what was considered certain as a busy spell. It is now hoped that when old Jamaica begins to glow again there will be a bigger rush than ever towards the lake front, and everything that can turn a wheel will be kept busy carrying people out to enjoy the cool lake breezes.

There is a great change in the appearance of the lumber market this week. Formerly on Mondays and Tuesdays the market was crowded with lumber vessels of all classes with loads for sale. At present several schooners are laying at the market, light, heading down the river waiting for charters. In fact, there is next to nothing doing this week, either in the lumber or grain business.

The damages to the steamer J. H. Outhwaite and her consort, the schooner H. A. Barr, during the gale of the 19th of April, when they were driven ashore at False Presque Isle Point, Lake Huron, through the Outhwaite's machinery becoming disabled, has been touched upon in the Monthly Weather Review, and as both vessels were without cargo the passage up Lake Huron is therein pronounced as "a most foolhardy undertaking." The vessels, however, are nearly ready for service again and may give Prof. E. B. Garriott in charge of the Weather Bureau office here another guess.

BUFFALO.

Special Correspondence to The Marine Record.

Capt. Joseph M. Green is now in charge of the tug James Kennedy.

The new car dump at the Rochester & Pittsburg coal dock is now about ready for use.

The Welland and St. Lawrence canals will be kept open every Sunday during the rest of the season until 6 p. m.

Hingston & Son have completed another large scow to be used in the breakwater work contracted for by Hughes Bros. & Bangs.

The break in the canal this week did not amount to much and traffic was only delayed about forty-eight hours instead of nearly a week as at first reported.

Salvage and wrecking work on the foundered steamer Idaho, off Long Point, has not progressed as well as was expected. The weather will now be more settled and it is thought that all possible work on her will be completed in the next thirty days.

Major Symons, Corps of Engineers, U. S. A., has added the Oswego staff to his office force here and Buffalo is now headquarters of the Tenth Light-House District, including the resident naval inspector of light-houses and the supply tender Haze, Capt. John Baxter.

Many people are beginning to admit that there is some merit after all in the propeller wheel put on the market by Capt. Samuel Golden and he will soon have a chance to try

it on perhaps all the craft he wants to, although changes in propeller wheels is an old, old song.

Capt. Thos. Stoddard, who for three years sailed the Union Transit Co. liner Avon, died at Sault Ste. Marie last week, aged sixty years. Capt. Stoddard was an active member of the Shipmasters' Association and was energetic in looking after the best interests of the organization.

The funeral of the late Capt. Charles V. Gridley, U. S. N., took place at Erie, on Wednesday. Naval honors were accorded the remains and all business houses were closed also the city hall bell and those of the fire engine houses were tolled while the procession wended its way to the place of interment.

Capt. Edward H. Maytham is having a Golden designed propeller wheel placed on his new tug, the Portia, recently purchased by him at Toledo. The Portia has been thoroughly refitted since coming into Capt. Maytham's possession. She is to be used to transport the breakwater officials and contractors.

Two of the Erie line boats, the Tioga and Portage, are tied up for the present on account of slack times, but when the new wheat begins to move they will be put in service again. Even the line boats, all of which are of medium size, can't buck against, or rather compete with, the large cargo carriers recently put afloat.

Marine business is inclined to pick up again, although there is no advance in coal rates nor is there very much grain coming in. The excursion business is fairly brisk and general cargo by the railroad line boats seems to be picking up some. Better prospects are also being held out in the lumber trade and brisk chartering at fairly good freight rates are in view for next month.

A survey of the tug Babcock has been made by John Humble, of the Mills' dry dock, Buffalo. The Babcock, of Hand's line, lay in the creek as the propeller Milwaukee, was passing up. The big boat had to stop and back, and in doing so swung into the tug, doing considerable damage. Mr. Humble was selected by both interested parties to make the survey, and his decision was final.

June shipments from Buffalo by lake routes amounted to 174,709 tons of coal; 99,572 barrels of salt; 155,219 packages of cement; 142,376 barrels of sugar. Receipts of grain for the month were 15,918,478 bushels, distributed as follows: Wheat, 4,507,228; corn, 5,691,419; oats, 4,675,611; barley, 575,572; rye, 468,648 bushels. Other receipts included 50,000 bushels flaxseed; 186,424 sacks feed; 22,790 feet lumber; 14,285 shingles; 4,298 tons pig iron; 118,242 tons iron ore.

The Lake Erie Engineering Works, besides submitting bids for the construction of disappearing gun carriages, is now engaged in building mortar gun carriages for the government. This week, Mr. Richard Hammond, president of the company, returned from New York with a large contract for engines and boilers for a new ocean steamer, and there is other important work in sight, so that the Lake Erie Engineering Works is likely to be one of the busiest plants on the lakes for many months to come.

The Standard Oil Co. attempted to tow their large steel oil barge through Cedar Rapids on Tuesday, with Lesslie's little tug Rival, with the result that the oil barge stuck on Hog Island, about half way down. Some years ago Capt. Alexander McDougall took one of his large whaleback barges down the same rapids in tow of Calvin's steamer Chieftain with perfect safety. Reports say that she is in very bad condition. The barge was said to be intended for the United States navy, to be used as a fresh water supply ship for the blockading fleet around Cuba, and although her stranding was wired here her present condition is not known.

DETROIT.

Special Correspondence to The Marine Record.

The steamer Specular and consort Magnetic, which were aground in St. Mary's river, went into dry dock at West Superior for survey and repairs if necessary.

Maj. M. B. Adams, Corps of Engineers, U. S. A., and light-house engineer for the district, says that the two side lights destroyed by ice in Grosse Pointe channel last winter will be replaced at once.

The United States commission of fish and fisheries, Washington, advertise for proposals on shipping 110 tons of soft coal, to be delivered at Put-in-Bay, bids are to be opened on the 26th, and the coal to be shipped in August.

At Port Huron the custom house collector compels captains of boats to put a 10-cent stamp on arrival and clearance papers. The Toledo collector can find no authority requiring stamps on manifests, neither can any others.

There is hardly a murmur heard in vessel circles about the increased expense for war taxes, everyone pays up and seems satisfied to know that the tax is necessary, and that all are treated alike, from the brokerage to the check tax.

It is expected that the large steel cargo steamer being built at Wyandotte by the Detroit Dry Dock Co., for the Western line, will be launched Saturday afternoon. With the exception of one small steamer this will clear the yard of all shipbuilding work.

Forest fires are now prevalent in the pine regions of Michigan, and as the dense smoke obscures the land around the Straits of Mackinac, navigation is becoming very difficult. The utmost caution will be necessary to prevent serious stranding casualties, if not collisions.

The Canadian steamer Tecumseh, which stranded on a rock in Marquette harbor, is now waiting to dock at the

West Superior dry dock. It seems questionable if she is not a constructive total loss, and only she was too easy to get, experts seeing her condition might have declared her an actual loss as she lay in Marquette. Now she must dry dock for survey at least.

A handsome book published by the Detroit & Cleveland Navigation Co. will be mailed to those sending a 2-cent stamp to A. A. Schantz, G. P. A., Detroit, Mich. It contains a large number of fine engravings of every summer resort between Cleveland, Toledo, Detroit and picturesque Mackinac. It has many artistic half-tones of points of interest of the upper lake region.

Andrew Hackett, keeper of the Bois Blanc light, got track of a big boulder turned up by the dredge working on the channel below Amherstburg, Ont. For three nights he and his assistants kept watch to warn vessels off the obstruction. Capt. Hackett is one of the best light-house keepers in the service of the Dominion of Canada, and is well worthy of the trust reposed in him as keeper of the light guiding the Lake Erie commerce of Detroit river.

The Standard Oil Co. undertook on Tuesday, to tow one of their large steel oil barges down through the rapids of the St. Lawrence river, with the result that the tanker stranded on Hog Island, in the rapids known as the Cedars. This is quite a stretch above what is supposed to be the dangerous place, namely, "Split Rock." The current at Hog Island is very swift, and it will be a dangerous as well as a costly job to release the steamer. Some years ago Capt. MacDougall, of whaleback fame, with the tug Chieftain, towed one of his large barges down these rapids, and succeeded without any apparent difficulty.

Nothing is heard this week from Capt. James Reid and his work on the Cayuga, but it is known that he is sticking to the job and is likely to gain the best reputation on the lakes by getting the large steel steamer to the surface. His recent wrecking work on the Outhwaite and Barr was performed in a prompt and skillful manner, although it is thought that he did not get as much money out of it as he was entitled to, or, rather, as much as he deserved.

The government is utilizing the services of Frank A. Kirby in the inspection of ships at various points on the coast. These ships are used in the transport of troops, and when the authorities wanted a man who understood all about vessels and their build, Mr. Kirby was called in to give advice. It is an honor for him to be selected for so important a mission, and the department fully recognized the peculiar ability of Mr. Frank A. Kirby in this direction.

It is rumored that the Detroit and Lima Northern Railroad intends to establish a big coal dock here and compete with the Michigan Central and Lake Shore roads by vessel as well as by rail. Several months ago the Detroit and Lima Northern cut the rate of freight from Toledo from \$1.25 to 90c. per ton. The report says that the Lima Northern will carry coal from Ohio ports to Ecorse by water, which will effect a great saving and meet all competition.

The wreck of the old hospital steamer Milton D. Ward still lies off the pumping station, and the Supreme Court has decided in the suit of the water board against the city and the Grummond estate that the city must bear the expense of moving it to some other locality. The decision is significant, because the Grummond estate refused to accept the boat in its ruined condition and sued the city for \$12,000, which suit is pending. The Supreme Court holds that the boat is in the city's possession.

"Summer Days on the Detroit and St. Clair Rivers," is the attractive title of an illustrated annual issued by the Star-Cole, Red & White Star lines. The book contains a description of all points of interest along the rivers mentioned in the title from Detroit to Port Huron. Beautiful half-tone cuts of club-houses, cottages at the flats, fishing parties and pretty girls brighten every page. The edition for the season 1898 is now ready for distribution, and may be obtained by applying at the Star line's office, foot of Griswold street.

CLEVELAND.

Special Correspondence to The Marine Record.

Bids are asked for dredging the river at Lorain and will be received up to August 2. Printed forms for the proposals can be received from the Lorain city clerk, G. A. Resek.

The collector of customs fined the steamer George L. Colwell \$20 this week because she failed to get a clearance at the islands. Custom house work is being more carefully attended to at all lake ports than ever before.

The cargo of the new wooden schooner Chattanooga, on her maiden trip this week was a fair jag for an ordinary non-record breaking craft. She walked away from Toledo with 4,225 tons of soft coal, on a draft of 17 feet.

Ensign W. C. Cole, U. S. N., formerly of the local hydrographic office is spending a few days at his home in this city, having leave of absence while his vessel, the Dolphin, is undergoing repairs at the Norfolk navy yard.

Phil. Scheuermann, Jr., Houghton Mich., will join the new steel steamer Presque Isle, Capt. James Lowe, as watchman. Mr. Scheuermann attended the Wilson Nautical School at Chicago last winter and he speaks very highly of the course of tuition given at that valuable institution.

The new steel steamer Superior City, built by the Cleveland Ship Building Co., arrived at Lorain on Wednesday with the largest ore cargo ever taken into that port. She had on board 7,115 net tons of ore, and was drawing 17 feet

8 inches. A previous cargo was 7,564 tons net, Escanaba to South Chicago.

The branch hydrographic office ought to be furnished with a telephone, so that enquiries might be made without the time and trouble of personal interviews. Many times questions arise when an hour of leisure is not at the disposal of the questioner, but a telephone call in many cases would solve the attendant enigma.

The steamer Merida, while attempting to get out of the river without the aid of a tug struck the dock at the mouth of the old river bed. The wharf, for a distance of about 30 feet, was damaged, but the steamer was not injured. Capt. C. E. Benham surveyed the dock and recommended repairs amounting to three or four hundred dollars which will be carried out.

When the United States has charge of Havana one of the first things that should be done is to raise the damaged hull of the Maine. Some vessel men at this port believe that the stranded Spanish warships on the south side of Cuba ought to be got hold of also, and that the government could not do better than employ expert wreckers at the work without loss of time.

Capt. C. E. Benham was the wrecking master in charge of the schooner Wadena on her passage from Marquette to this port. Although the vessel was leaking badly the extra pumps kept the water under and she came along all right. Capt. Benham is very fortunate in all of his wrecking jobs and has an alternative for every difficulty that arises, as many usually do in the course of wrecking and salvage operations.

The C. & B. Line steamer City of Erie ran between this port and Put-in-Bay on Sunday last in the shortest time yet known, beating the best former record, held by her sister ship, the City of Buffalo, by five minutes. The distance is called 64 miles, and was covered by the Erie in two hours and forty-five minutes, an average rate of about 23 miles an hour. Previous to the City of Buffalo making a record of two hours and fifty minutes the City of Cleveland had the best time over the route to her credit. It was three hours and fifteen minutes.

The side-wheel passenger steamer State of New York is about ready for service again after collision with the whale-back Cort. Line boats have no particular right of way over other sailing craft, as would appear from the two collisions these side-wheelers have had so far this season. Formerly the Buffalo line boats were said to be sort of hoggish and would not give way when they ought to. It's different now, but Cleveland boats don't want to pick up any such a reputation through thinking that they are setting the lake on fire as soon as they turn a wheel.

Weather Clerk Dunn, at New York, resigned this week rather than go into service at another station. After the Cleveland forecast official, W. B. Stockman, had accepted orders to proceed to the West Indies, Mr. Dunn was requested to go there also, but he questioned the authority of the Chief of the Weather Bureau to send him on a detail out of the country and he was then offered the position of local forecast official at this port. It appears that Mr. Dunn considered that it would be a professional degradation to accept office at a minor port like Cleveland, and rather than be subject to such an Irish promotion he quit the service. There is no doubt jealousy and politics mixed up in the matter, but as regards work pure and simple, Mr. Dunn might have found even a larger field for his official forecasting at Cleveland than ever he has been able to conceive among the less important interests at New York. This from a shipping point of view and an agricultural one as well.

FLOTSAM, JETSAM AND LAGAN.

Capt. Cleary, keeper of the Marquette life-saving station, has gone to Omaha, Neb., where he will have charge of the life-saving crew at the exposition.

The Light-House Board has awarded contracts for the construction of Racine reef crib as follows: Brick, Mack Manufacturing Co., Pittsburg, \$953; stone, Horlicks Lime & Stone Co., Racine, \$1,277; cement, H. Houghton, Detroit, \$578.

THE PEEP-SHOW.—"This, ladies and gents, is a picture of the Israelites a-crossin' of the Red Sea." "But where are the Israelites?" "Oh, they've just gone over." "Well, where are the Egyptians?" "They've just gone under."—Ex.

On her last trip down the lakes the steamer Ferdinand Schlesinger reached Escanaba at 12 o'clock noon, and in the short space of one hour and five minutes later had finished loading a cargo of 3,200 gross tons of iron ore. This beats all previous Escanaba records.

Capt. McDonald of the Richelieu and Ontario liner Caspian, which ran ashore recently on the Twin Islands, opposite Thousand Island Park, claims that he missed his bearings because the islands have moved. The steamer which is fifty-three years old, is badly damaged.

Ore shipments from Ashland for the season up to this week aggregated 1,026,324 tons, against 517,447 tons last year for the same time. Seven cargoes were cleared on Monday, aggregating 35,350 tons, or over 5,000 each. The boats were the Amazonas, Linn, Rees, Norton, Jenney, Oglebay and Ericsson.

Mrs. W. Wheatley, widow of the drowned keeper of Marquette lighthouse, has gone to Eagle harbor, where she was given charge of the lighthouse. The \$150 reward for the recovery of Capt. Wheatley's body will be paid to Louis and John Oudotte and David Hume. Hume will turn his share back to the widow.

H. D. Bodley, Flint Heading Works, Flint, N. Y., asks for information regarding his brother John H., who was a stationary engineer in Buffalo, and also held a marine license. Last heard of four years ago in Chicago. His inquiring brother is willing to pay any expense incurred in locating John H. Bodley.

Capt. W. H. Dunn, who is favorably known at lake ports, has reopened the old Lakeside Hotel at Ashtabula Harbor, after having remodeled and renamed the house the Point Park Hotel. The new hotel is, according to the Ashtabula papers, one of the finest in Northern Ohio. Capt. Dunn is a good hotel man, and his former shipmates and friends will wish him much success.

At the launch of the new steel whaleback steamer Alexander McDougall, the steamer was christened by Capt. McDougall's little daughter Emmeline. On the christening platform stood three generations of the McDougalls—Mrs. Duncan McDougall, the captain's aged mother; the captain himself and his little daughter. No vessel could start out under more favorable auspices.

The Mineral Range coal dock at Hancock, Mich., is in bad shape. Part of the new section of wharf and hoist slid outward ten feet on Saturday last. No coal was lost, but the unloading of the steamer Specular was discontinued. The trouble is ascribed to poor cribbing in the foundation and repairs will be difficult and expensive.

The Merrill & Ring Lumber Co. has just sold 3,000,000 feet of lumber to go east, says the Duluth News-Tribune. The vessel rates for transporting lumber are now openly cut. It has been generally known for some time that the association rates were not adhered to, but now open cuts are made. The going rate for lumber at present is \$1.62½ to Buffalo or Chicago, and \$1.50 to Ohio ports. The reduction all around is 12½ cents.

The Northern Pacific Railway is receiving steel rails in considerable quantity at Duluth, to be distributed along the line at various places where the old rails are replaced by new. The receipts of steel rails at Duluth this summer will be heavier than ever before in a single season. The Great Northern is a heavy consumer of steel rails this year on account of the construction of the Fosston branch. The shipments of rails to Japan go through Duluth also.

Mr. Joseph I. Hayes, chief engineer of steamer Queen City, wrote the Joseph Dixon Crucible Co., Jersey City, N. J., as follows: "We are carrying 225 pounds of steam, and I am satisfied I could not do anything without Dixon's pure flake graphite, as the oil we use up here is not fit for the purpose. When the cup gets empty, it is about all you can do to get the throttle shut, and when the graphite gets there a child can handle it. I do not believe there is any engineer who does not keep Dixon's graphite on hand."

It is reported that the Ohio coal roads, through the Central Coal and Coke Co., are planning a desperate effort to drive the West Virginia operators out of the lake business or make them come to terms. It has always been the contention of the Ohio coal traffic interests that the lake business properly belonged to them, and that the lakes are not the natural market for coal from West Virginia. Accordingly the company has determined on a more aggressive policy and will reduce the price of coal 5 cents a ton on board vessels at Toledo. The reduction will be borne by the operators since the railroads claim to be hauling for as low a rate now as they can stand.

In the case of the British steamship Irrawaddy, which stranded on the New Jersey coast, 19th November, 1895, while on the voyage from Trinidad to New York, and the navigator being found negligent, the U. S. Circuit Court of Appeals has held that where a vessel, seaworthy at the outset, is afterwards stranded by the negligence of her master, the shipowner (though exercising diligence to secure seaworthiness, proper manning and equipping and supplying, under Section 3 of the Act of 13th February, 1895) has no right to general average contribution for sacrifices and suffering by him subsequent to the stranding in successful efforts to save vessel, freight, and cargo.

Messrs. Oelrichs & Co., the New York agents of the North German Lloyd Steamship Company, received a cablegram on Monday from Capt. Englebart saying that the steamer Kaiser Wilhelm der Grosse had made the run from Sandy Hook lightship to the Needles in five days nineteen hours and thirty-five minutes, at an average speed of 22.56 knots, over a distance of 3,146 miles. This time is two hours and twenty-seven minutes less than her best previous record to Southampton, and on her present voyage the steamer covered eighty-one more miles than she did on her record-breaking voyage.

The Marinette Eagle of Saturday has the following: "This week the barges Burton and Gardner unloaded coal at the Menominee river coal dock. From one of the sailors, who had been discharged, T. C. Miller, owner of the dock, learned that some of the anthracite product had been surreptitiously taken by the vessel captains. With Sheriff Brown he searched both boats and in the Burton discovered about ten tons stowed away beneath the sleeping bunks and behind a partition forward. On the Gardner he found a smaller amount, similarly hidden. The two captains decided to pay for the coal after their nefarious work was discovered, and it amounted to just \$50."

THE Almy Water Tube Boiler Company, Providence, R. I., has erected a large addition to the shop, and the arrangement of the machinery so changed as to greatly facilitate its operation. A large open space is left in the center of the building for the erection of the boilers.

THAT CHARTER PARTY TAX.

Up to the time of our going to press Harvey D. Goulder, Esq., counsel for the Lake Carriers Association, nor any of the prominent vessel owners had heard anything about the decision relative to the war measure of taxing each charter made by lake carriers.

A Washington special to the Cleveland Leader, states as follows:

"The charter party paragraph in the new war revenue law does not apply to vessels plying in the Great Lakes or other inland waters. This is the ruling of the Department of Justice made to-day to the internal revenue commissioners. The decision was brought out by a brief filed with Commissioner Scott a couple of weeks ago by Harvey D. Goulder, of Cleveland, counsel for the Lake Carriers' Association. Mr. Goulder wanted to know whether owners of vessels engaged in lake commerce were taxable for every charter taken or whether the tax was to be assessed by the season. He submitted the matter to the Internal Revenue Commissioner and that official in turn asked the Department of Justice for its construction of this particular feature of the law. Mr. Scott realizing that the question was one of very great importance, Assistant Attorney General Boyd examined the paragraph relating to the tax on charter parties and came to the conclusion it was not applicable in any way to lake vessels. The construction placed upon it is that the paragraph applies only to vessels registered under the provisions of chapter 48 of the Revised Statutes of the United States and that vessels enrolled under the provision of chapter 50 of the Revised Statutes are not included. These latter are vessels of upwards of twenty tons which are enrolled and licensed. Mr. Boyd held further that enrolled and licensed vessels are placed by Congress on the same footing as other inland transportation companies.

"Congress did not purpose in my opinion," said Mr. Boyd to-day, "to compel a vessel engaged in the lake carrying trade to pay this charter tax at all. Such a tax, if levied upon inland boats, would be a manifest discrimination in favor of registered vessels for the reason that lake boats might be compelled to pay a tax once or twice a week while foreign vessels would escape with the payment of the tax but once a year. Lake and river vessel owners have to pay the stamp tax on their bills of lading, and that is enough, and all that Congress I believe intended they should pay."

This ruling has not yet been promulgated by the Internal Revenue Commissioner, though it will be made public before the end of the week. As was stated in these dispatches on the occasion of Mr. Goulder's visit to Washington in connection with this question, it was the attorney's intention to have Congress amend the present law in the event the charter party paragraph were construed as meaning a tax on every charter taken by a lake vessel, but in the light of Mr. Boyd's construction this action will not be necessary.

The ruling is much more favorable than Mr. Goulder and the Lake Carriers' Association had reason to expect."

WEALTH IN COPPER.

There is wealth in copper ore mining as the following from the Duluth News-Tribune would show:

Head of the lakes people, many of whom are now interested in the development of copper mines in this vicinity, will be interested to know that the Calumet & Hecla Mining Company, operating the famous Lake Superior copper mine, recently paid a dividend of \$1,000,000. This is the regular quarterly dividend, and with it included the mine will have paid the stockholders in the company the sum of \$53,850,000 within 30 years. This is a larger amount than has ever been paid in an equal space of time to the stockholders of any gold, silver or diamond mine in the world. During the fiscal year ending the latter part of April last, the Calumet & Hecla paid dividends amounting to \$4,000,000, and in the calendar year 1897 the dividends paid aggregated \$5,000,000. Last month a single share of \$25 per value sold on the Boston stock exchange for \$575. The company's capital is 100,000 shares of \$25 each, making the nominal capital of the mine \$2,500,000 as original value, while the actual market value on the basis of this sale of a single share would be fully \$57,500,000. This is the largest market valuation ever placed on any mine, and is equal to the aggregate of the market value of all the copper mines in the Lake Superior district four years ago.

DETROIT MARINE POST OFFICE.

LETTERS REMAINING ADVERTISED IN DETROIT, MICH., POST OFFICE JULY 15, 1898.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Book Fred, Sch. M. B.	McAuley Dan
Mitchell	Osborn John F., Str. Cen-
Bogrand Elias	turion
Boyle James, Str. Josephine	O'Meara Mary
Brown Robert J.	Paush D. S., Str. Stevens
Evans Charley, Sch. San-	Parsons Capt. A. B. Sch. San-
dusky	dusky
Foster G. H.	Peterson Capt. P., 2, Sch.
Ludwig John, Str. Josephine	Moravia
La Rose Frank	Rautenberg Wm. Sch. Moravia
Mausolf Albert, 2, Str. Macy	Smith Jos. A.
Manson Luke, Str. Peck	Trader Tim
	F. B. DICKERSON, P. M.

"SOO" POWER CANAL.

July 1 the opening of bids for the construction of Sault Ste. Marie's water power canal was begun by Chief Engineer H. Von Schon, of the American Lake Superior Water Power Co. The names of the bidders were not given, but each bid as it was received was given a number, the water power company reserving to itself the name of the bidding firm and the figures of each until such time as it sees fit to make public the bid. It will take some time to compute the aggregate of the various combination bids received for the different sections of the work. As reported in a previous issue of the MARINE RECORD the work is divided under the specifications into seven heads comprising rock work, construction of intake, earth excavation, the forebay construction, construction of power building and canal sections. Either E. D. Smith & Co. or Mason, Hoge & Co., two of the firms that submitted proposals on the entire work, it is thought will be the successful bidder. The former firm contracted on the water power development of Niagara Falls, while the latter contracted on the big Chicago drainage canal project. Work will begin about August 1, and the canal is to be completed January 1, 1900. The contract is larger than any that is now prosecuted by a corporation in the United States, excepting, possibly, railroad corporations.

ACTION OF SALT WATER ON METAL.

DURING the recent dredging operations at the port of Brest a number of ancient arms and other metallic objects were brought up which had been under water, in some cases, for centuries. Specimens of several of the metals thus recovered have been sent to the Laboratoire Centrale de la Marine at Brest, and have been examined there with a view to determining the effect of the prolonged immersion. Amongst them was an arquebus of bronze, dating it is thought, from the end of the 16th century. The metal on analysis was found to contain from 82.9 to 80.3 per cent. of copper, 7.5 to 9.8 per cent. of sulphide of copper, and 9.4 to 9.7 per cent. of tin, with traces of lead. The metal was in an excellent state of preservation, and the superficial sulphides with which it was covered were in all probability derived not from the sea water, but rather from the bottom on which it rested. Far other was the state of the cast-iron shot recovered, although these had not been immersed more than 240 years. These had become so soft during their prolonged stay under water that they could be cut with a knife.—Modern Machinery.

NOTICE TO MARINERS.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., July 11, 1898.

LAKE ERIE.—Notice is hereby given that on July 2, 1898, the following-named gas-lighted buoys were established in the westerly end of Lake Erie:

Sandusky Bay outside gas buoy No. 2, painted red, numbered 2, and showing a fixed white light during periods of 4 seconds' duration, separated by eclipses of 10 seconds, on the northerly side of the entrance to the dredged channel across the bar, and about one mile NE. from Cedar Point range front light-house, in place of the former red, second-class can buoy numbered 2.

Gull Island shoal gas buoy No. 3, painted black, numbered 3, and showing a fixed white light, on the northeasterly point of Gull Island shoal and about 1¼ miles S. ½ E. from Middle Island (Canadian) light-house, in place of the former black, third-class can buoy numbered 3.

Niagara Reef gas buoy No. 5 painted black, numbered 5, and showing a fixed white light during periods of 10 sec-

onds' duration, separated by eclipses of 10 seconds, on the northerly side of a small reef and about 5¾ miles WNW. ⅝ W. from Green Island light-house, in place of the former black, second-class can buoy numbered 5.

Bearings are true and given approximately; miles are statute miles.

GRAND MARAIS HARBOR OF REFUGE RANGE REAR LIGHT STATION.—Notice is hereby given that, on or about July 15, 1898, a fixed white light of the fifth order will be established in the tower recently erected at the inner end of the west pier, harbor of Grand Marais, south side of Lake Superior, and 1,220 feet S. ⅝ E. in rear of the light on the outer end of the pier, with which it will form a range for entering the harbor.

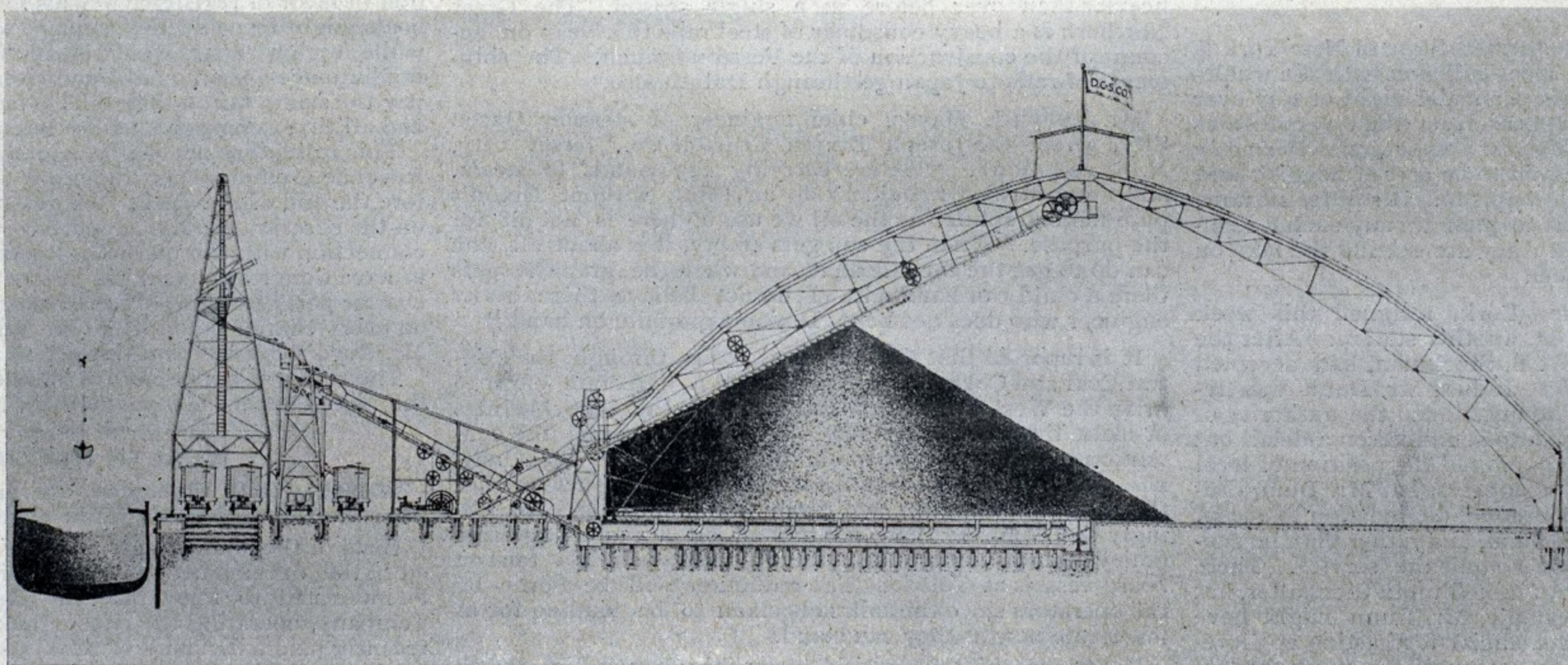
The light will be 54 feet above mean lake level and 48 feet above the base of the tower. The light will be visible about 15¾ miles in clear weather, the observer's eye 15 feet above the lake. The light will illuminate 180° of the horizon and will be visible from all points of approach from the lake to the northward of W. ⅝ S. and E. ⅝ N. (bearings from a vessel.)

The tower is a white, square, pyramidal, skeleton steel structure, having the upper part inclosed, and is surmounted by a black lantern.

CAUTION.—Vessels should not attempt to go alongside the piers owing to riprap stone having been placed there to within five feet of the surface.

By order of the Light-House Board:

WIND POINT (RACINE POINT) LIGHT STATION.—Notice is hereby given that on or about July 15, 1898, the flashing



Modern Coal Handling Mechanism

At the Lehigh Valley Coal Co.'s Storage Plant, W. Superior, Wis. Erected by the Dodge Coal Storage Co., Nicetown, Pa.

of the light at this station, on Wind Point, westerly side of Lake Michigan, will be temporarily discontinued, for repairs to the illuminating apparatus, for a period of about ten days. During that period the light will show fixed white, produced by the present lens, stationary, and a lens lantern, with beams of alternating intensity, which will be visible about 19 and 7 miles, respectively, depending upon the direction from which the light may be seen. After the repairs have been completed the present characteristic of the light will be restored.

By order of the Light-House Board:

FREDERICK V. MCNAIR,
Commodore, U. S. Navy, Chairman.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DISTRICT,
CHICAGO, ILL., July 9, 1898.

Notice is hereby given that a 30 foot red and black horizontal striped spar buoy was established July 8th on Minneapolis shoal, Green Bay. The buoy is in 17½ feet of water, and marks the center of a small rocky shoal (17½ feet least depth) on which the steamer Minneapolis struck June 3, 1898. Eleven foot shoal light-vessel bears N. ⅝ E., 2½ miles.

Bearings true and distances statute miles from buoy:
Rock Island light-house, S. 38° 30' E. (S.E. ½ S.) 13½ miles.

Poverty Island light-house, S. 76° E. (E.S.E. ¼ E.) 16¾ miles.

Peninsula Point light-house, N. 14° E. (N. by E. ¼ E.) 6½ miles.

Vessels should give this buoy a berth of at least ¼ mile.

C. O. ALLIBONE,
Lieut. Com. U. S. N., Insp. 9th L. H. District.

NOTES.

A CONTRACT was awarded for 25,000 tons of steel plate a few days ago to the Carnegie Steel Co., of Pittsburg, for four ocean steamships now in course of construction by the Morgan Steamship Co. The vessels are to be run between the United States and South America. The Newport News, (Va.), Dry Dock & Ship Building Co. let the contract. The contract involves in the neighborhood of \$750,000.

THE effect of the length of steam pipes on the economical working of engines was illustrated in a paper by Sir John Durston, Engineer in Chief of the English Navy, at the recent meeting of the Institution of Naval Architects, in which it was said that the trials of the Diadem showed a saving of from 20 to 30 per cent. of the total coal used by the use of the after boilers, which were those having the shortest steam pipe.

THE report has gained wide circulation that Pittsburg parties have arranged to build a large steel works at East Chicago. The tract secured has 330 acres in it, and fronts for two miles on Lake Michigan, and lies on Calumet river. The works will combine blast furnaces, rolling mills, converters, structural steel mills—all the forms of the material, including rails, wire rods, etc. The works will employ 2,000 men at the start, and double that number later. A harbor will be constructed at the mouth of Calumet river, for handling ore from the Superior mines, that will be carried in boats. The enterprise has the backing of Henry C. Frick, the active director of the Carnegie works, and of other leading steel manufacturers and operators in ore, coke, etc.

THE wonderful performance made by the United States battleship Oregon in steaming from San Francisco to Key West without a break-down in her machinery, and reporting immediately upon her arrival for active service, has won the admiration of all classes of engineers, particularly those interested in marine machinery. To have been able to make this record it was absolutely essential that all parts of the machinery should be of the best. The superiority of hollow forgings over solid forgings, in this case is made very apparent, as the crank shafts, line shaft, thrust shaft and propeller shaft were all made hollow, having a 6-inch hole through them. They

were manufactured at the only forge in this country prepared to do work of this magnitude, the Bethlehem Iron Co., South Bethlehem, Pa.

COALING stations the United States needs and must have. This is beyond any question, and as such it must be treated. Commerce, our merchant marine, and the defense of our coasts render coaling and naval repair ports a national necessity under the conditions which govern a modern navy. Whether the territory to be conquered in our war with Spain is to be held as a colony cuts little figure in the present matter. Our Asiatic commerce now and in the future—the latter more particularly—cannot be protected without coaling stations in the Philippines, Carolines and Ladrones. Our immense stretch of Pacific coast cannot be defended without Honolulu as a base of supplies. Our control and protection of the Nicaragua canal renders necessary a coaling station in Porto Rico. Without coal the modern war vessel is a mere floating fortress. It is powerless without it. All experts knew this before war was proclaimed, but the public having been educated by experience, knows it, and coaling stations will be had.—The Black Diamond.

THERE are thirty-five torpedo boats building and authorized and thirty-three vessels of all rates other than torpedo boats are under construction or authorized. The ships of the auxiliary navy include thirty-six cruisers and yachts, thirty-two steamers and colliers, twenty-five tugs, fifteen revenue cutters, four light-house tenders and two fish commission vessels.

IN THE EARLY DAYS OF COMMERCE ON LAKE SUPERIOR.

The history of the Great Lakes, and each lake separately has been written time and again by different writers, and something new has been gleaned from each record. Judge John R. Carey in a serial to the Duluth News-Tribune adds his quota to former records of events on Lake Superior as follows:

I am indebted to James Bardon, of Superior, Wis., and to Capt. J. J. Hibbard, one of the early pioneers of St. Louis county and the city of Duluth, and yet an honored resident, and also to Henry W. Wheeler of Duluth, both of whom navigated Lake Superior, for much of the information relating to early sailing vessels prior to 1870. The first schooner brought from the lower lakes across the portage at Sault Ste. Marie was the Algonquin. I am unable to learn at what date she was brought across. When she became known to the people at the head of the lake, in 1855,* she was owned and commanded by a captain of the name of Davidson. She sailed on Lake Superior for a number of years. In November, 1857, she was chartered at Superior, Wis., by Capt. Hibbard to carry supplies to Burlington Bay on the north shore, where he and his brother were about to erect a small saw-mill. On her return to Superior she was laid up for the winter. The next season she was not again fitted out, but lay anchored in the bay, unfit for further service. In the fall of 1858 she was towed to the shore on the easterly side of Quebec pier at Superior, where she quietly rested until a fire that destroyed a part of the pier consumed the upper part of her hull. Some years ago the remains of the hull were removed, and some of its timbers were utilized in the shape of canes, which were presented to many of the old settlers at the head of the lakes; and, to meet a future demand in that line, I am told that an adequate supply of her remains is yet preserved at Superior.

The next boat owned at the head of the lake was the small propeller Seneca, belonging to Thomas G. Barnes, of Superior. She ran across the bays and to Fond du Lac until 1861, when she was taken to Ashland to guard the Indian supplies, in command of Capt. Walling. From there she was taken to Detroit, Mich., to have her boiler repaired. After the boiler was supposed to have been repaired a fire was started for the purpose of testing it. Through carelessness, some of the bolts in the plate had not been put in or secured, and on a small pressure of steam the boiler collapsed and scalded to death the captain and another man.

The next was a scow schooner named Neptune, hailing from some port on the lower lakes. It was owned by her captain. In 1860 she was engaged in the lumber trade between Oneota and Milford, and Portage Lake and Marquette. On her first trip out in that year, freighted with a load of dry lumber from the Milford mill, starting down the lake she was met by a northeaster and driven back, and in attempting to make the entry she ran ashore on the lower end of Minnesota Point. The captain and crew were all saved. The captain hired some men at Superior and set them to work to pump her out and try to get her off the sand. After working at her for some time the men reported to the captain that she had large fish in her hold, whereupon he sold the wreck to R. C. Coburn, of Superior, who the next day went with some men and before noon had her off the sand and inside the bay. She was unloaded, hauled out on the point and thoroughly repaired, and was continued in use in the lumber trade between Oneota and Milford and points on the south shore. In 1865 she was wrecked near Eagle river while under command of Capt. Matthews.

Capt. George P. McKay, manager of the Mutual Transportation Co., Cleveland, done his first sailing in the schooner Algonquin, spoken of by Judge Carey. She was built in 1838, at Lorain, O., by Capt. Jones, and portaged across to Lake Superior. In 1845, Capt. John McKay, father of Capt. George P., owned and sailed her. The Algonquin chiefly carried passengers, explorers, prospectors and others. Her dimensions were 54 feet in length, 20 feet beam and 5 feet deep, planked with 1½ inch stuff. Capt. John Halloran sailed her after Capt. McKay. She was later sold to James Carson, Ontonagon, and Capt. McGregor sailed her.—ED.

northeaster. She was driven within one hundred feet of the bay shore on the inside of the point, but fortunately no lives were lost. While in that condition a number of attempts were made to get her off. Mr. Peyton began to get discouraged as to the prospective value of his venture, and sold out his interest to Coburn and Ingalls. Then, in turn, Ingalls also became discouraged, and sold out his interest to H. W. Wheeler, of Oneota, on November 1, 1865. Here was the first interstate ownership of a vessel between Superior and Duluth. Every effort was made to get her off. A channel was dug from the bay to the vessel, when at that time operations for the year ceased. Here I quote a paragraph

Mr. Coburn, with H. M. Peyton, now a prominent and wealthy resident of Duluth and president of the American Exchange bank, of Duluth, and E. Ingalls, now deceased, purchased at Oswego, on Lake Ontario, another and larger schooner, named Pierrepont. Soon after her advent to the head of the lakes on October 22, 1865, she, also, was driven on shore on the lower end of Minnesota Point by a terrific

her in towing scows with stone from Fond du Lac for the government piers at the entry. She was commanded by Capt. Alfred Merritt. She is yet in commission at Duluth, and is known as the John H. Jeffrey. In the same year the Stillmanwit plied as a ferry and excursion boat between Superior, Duluth, Oneota and Fond du Lac. In 1869 Mr. Willard, of Ontonagon, brought to the head of the lake a side-wheel steam ferry boat named Kasota. She plied between Superior and Duluth, with Capt. George D. Greenfield as master, and his brother, Charles T. Greenfield, as engineer. The same year the small side-wheel steamer J. C. Frost, owned by D. Schutte, of Superior, was run as a ferry and excursion boat between Superior, Oneota and Fond du Lac. The same year the small steam yacht John Keyes made her appearance. She was purchased by the Lake Superior & Mississippi Railroad Co., which was then in course of construction, and used in its service on the bays and rivers, with Capt. George Sherwood, then and now of Duluth, as master. In the same year the tug Amethyst, owned by H.

W. Wheeler and R. G. Coburn, was put in service in the harbor.

The steamers plying on Lake Superior, up as far as the head of the lake, before 1870, as nearly as the writer can remember, were the propeller Manhattan and the side-wheel steamer Baltimore, both on the lake before the completion of the Sault Ste. Marie canal. It took the latter named boat six days to bring the writer and his wife from the Sault and land them on Stuntz' dock on June 2, 1855. Then, after the Sault was opened in July, 1855, the steamers Superior, Lady Elgin, North Star, Keweenaw, Planet and City of Cleveland made regular trips from Chicago and other lower lake ports to Superior during seasons of navigation. In 1869 an increase in the number of steamboats came. Among them were the Norman, Atlantic, Northern Light, Sandusky and Ontonagon.

EASTERN FREIGHTS.

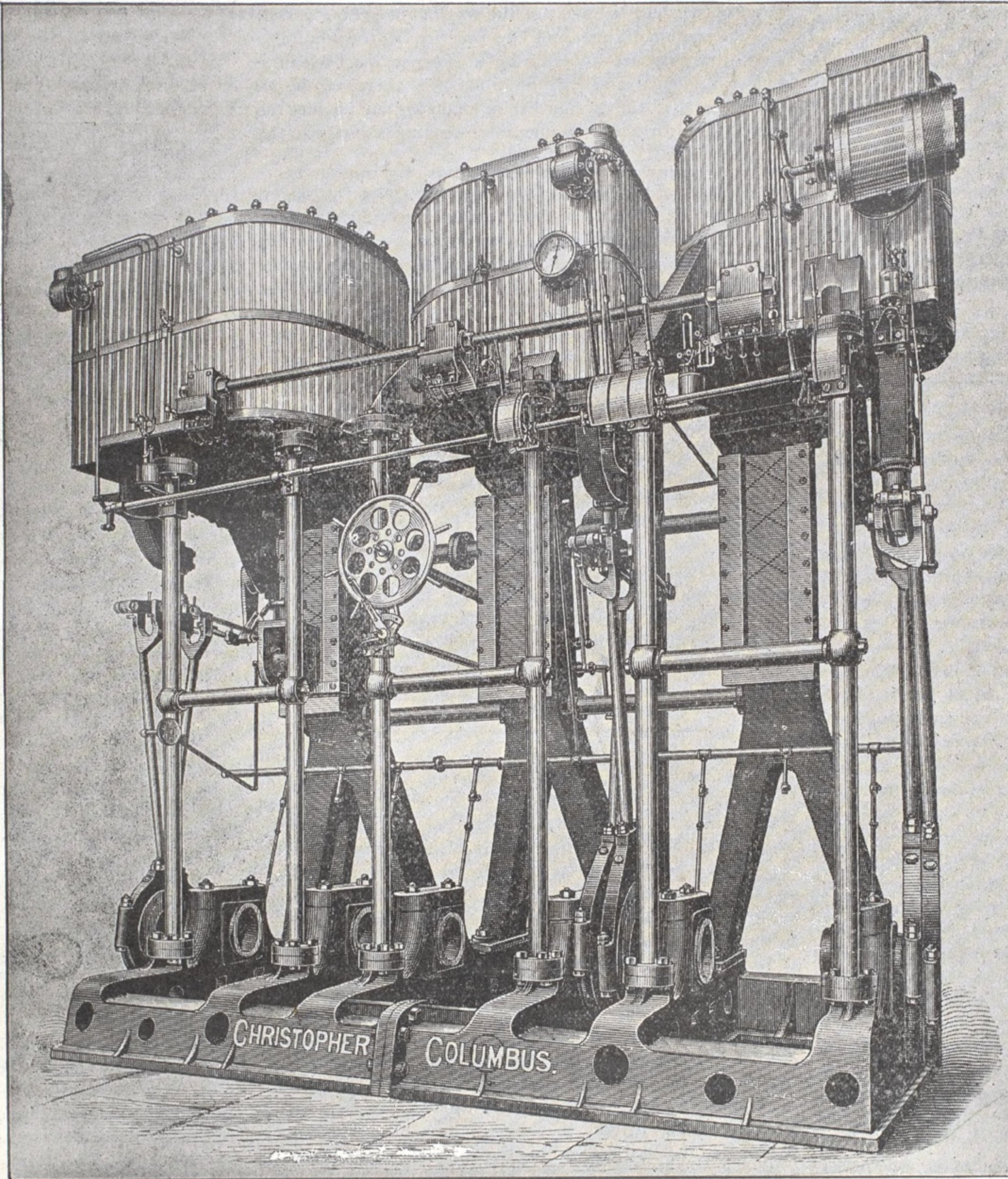
Messrs. Funch, Edye & Co., New York, report the eastern freight market as follows:

The improvement in our grain shipments, which we presented as likely to take place shortly has not as yet materialized, although we still believe in a better enquiry and steadier rates in the near future. A few fixtures have been effected, or are still pending, for Lisbon; clearance for which port, however, by foreign flag by 10th inst. is imperative. Berth freights by liners continue steady, but without any advance in rates. Boats for deals from the Provinces continue in some demand, and a slight advance for July and August tonnage is a likely contingency. Timber freights from the Gulf are somewhat easier, the demand for steamers for general purposes continues very light.

Chartering in sailing vessels has been very limited since our last report, the national holiday, as usual, interfering somewhat with business. Tonnage remaining scarce, but the demand for vessels at the moment is not very urgent, and we consequently have no change of importance to report.

A VERY neat booklet describing the merits of the Regal metallic packing has been issued by the Regal Packing Co., Fisher Bldg., Chicago, Ill. Besides illustrating and describing this packing, some important general notes on packing are also printed, giving a brief history of the use of packing for steam machinery from the earliest days up to the present time. A list of prominent users of this packing is also printed in the booklet, in which we note some of the largest and best concerns in the country. A copy of this booklet will be sent on application.

THE sudden drowning of a good swimmer is not due to a cramp, as generally supposed. There is no reason, says a high medical authority, why cramp in a leg should prevent an ordinary swimmer supporting himself in the water by the hands or on his back, or cause him to throw up his hands and sink once for all like a stone. The explanation is that the drum of the ear is perforated and the pressure of water causes vertigo and unconsciousness.



Triple Expansion Engines of the Whaleback Passenger Steamer Christopher Columbus.

3,000 horse power; diameter of cylinders, 26, 42 and 70 inches, by 42 inches stroke of piston. Built by S. F. Hodge & Co., Detroit. Dimensions of the steamer, 362 feet over all; 42 feet beam and 24 feet deep.

from the Superior Gazette of December 16, 1865:

"The schooner Pierrepont was moved toward the channel on Monday last some 35 or 40 feet, but the recent cold snap has caused the ice to form so rapidly that it is more than probable she will remain where she now is till spring."

In the next spring renewed efforts were made by Coburn and Wheeler, and after widening and deepening the channel she was pulled into the bay. In the subsequent improving of the entry by the United States it cost thousands of dollars to fill up that canal. The Pierrepont was continued in the lumber trade until 1868, when she was sold to Samuel Vaughn, of Bayfield, Wis.

In 1864 or 1865 a schooner from Toledo, owned and commanded by Jerry Simpson, now a member of Congress from Kansas, and known as "Sockless Simpson," made several trips to Oneota and Milford for lumber. The schooner Ford, of Ontonagon, owned by Capt. John Parker, made some trips to those places after lumber. In 1868 R. G. Coburn chartered a tug called the Agate, of Ontonagon, and used



ESTABLISHED 1878.

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CLEVELAND, O., JULY 14, 1898.

THE communication from "Marine Engineer" in this week's issue of THE RECORD seeks to place credit where credit is due. The "black squad" must be recognized as the talent controlling the propelling power of steamers.

MATE BRAM, accused of murdering three people on the ship Herbert Fuller, has finally been sentenced to imprisonment for life, after a delay of two years. If guilty of the crime, he should have been executed. If innocent, he should have gone free.

CONGRESS has adjourned. The Spanish fleets have been wiped off the face of the waters, and now all hands should turn their attention to a brisk, progressive business era, pending the receipt of the five thousand million dollar indemnity which is to flow into our treasury from the coffers of Spain and further liven up all branches of manufacturing industries and commerce.

IN the official report of the traffic through the "Soo" canal contained in another column of this issue, it is noted that nearly two million tons of iron ore was shipped from Lake Superior during the month of June. In grain nearly two million bushels was forwarded and hard and soft coal carried west aggregated 535,154 net tons, 475,319 tons of which was bituminous.

THE approximate total tonnage inwards and outwards on the river Mersey, not including local river traffic, for the year ending July 1, 1898, amounted to 23,630,752 net register tons. The total receipts from dock taxes, harbor rates and landing dues on cargoes, etc., exceeded five and a half million dollars. The number of vessels, foreign and coastwise, paying dock and harbor rates was 24,664 compared with 23,640 vessels in the previous year.

IN the development of the United States of America war has played and is playing a most important part. The war of the revolution gave us political independence, but it remained for the war of 1812 to give us commercial freedom, and now comes the war with Spain. The influence that it will exert on the future of the country will be no less than that of previous wars. It is now apparent that it is to alter our country's ambitions and broaden its field of activities. One result will be the enlargement of the navy and the expansion of our mercantile fleet. The present war brings these things home to the American people. They realize now that a policy of expansion is a necessary adjunct to our commercial supremacy—that "trade follows the flag." They have grasped the situation and realize that the policy of isolation is no longer compatible to changed conditions, and they are ready and willing to embark on the new order of industrial activity and commercial progression.

THERE has been remarks made relative to the fault of collision between the Cromartyshire and La Bourgogne on the morning of July 4, off Sable Island. From the descriptions thus far published it appears that La Bourgogne violated rule sixteen of the international rules which requires a vessel in fog to go at a moderate rate of speed, sounding her fog horn whether other vessels are heard in the vicinity or not. She is reported to have been steaming at seventeen knots, though our courts held in the case of La Normandie that ten knots was excessive. But rule sixteen goes even further, providing that when a steam vessel hearing apparently forward of her beam the fog signal of a vessel, the position of which is not ascertained, shall, so far as the circumstances admit, stop her engines altogether. She may then navigate with caution until the danger of collision is over. Again, rule twenty says: "When a steam vessel and a sailing vessel are proceeding in such directions as to involve risk of collision, the steam vessel shall keep out of the way of the sailing vessel. The international rules and the practice of the admiralty courts are so strict in requiring a steamer to act with the utmost prudence and caution in fog, that there will be no doubt but that the Cromartyshire will bring suit against the French line for the full amount of loss and damage to the Cromartyshire.

THE death of ex-United States Senator Omar D. Conger, took place on Monday at the advanced age of eighty years. Mr. Conger was a member of Congress for seven consecutive terms and was then elected to the Senate, where he became a leader as he had been in the House of Representatives. He served his entire term in the Senate as a member of the River and Harbor Committee. He did more than any other member to secure important appropriations for the betterment of lake marine interests, and he was usually successful. His unceasing labor for the enlargement of the "Soo" canal and its final accomplishment has been recognized as of national importance wherever a pound of Lake Superior iron or copper is used. Vessel interests were ever his particular lookout. He was the man who secured the great breakwater and present harbor of refuge for Sand Beach, and the establishment of the weather signal service on the Great Lakes, which has become such an important adjunct to the commercial and transportation interests. Ex-Senator Conger leaves three children—Frank B. Conger, former postmaster at Washington, who practiced law with his father for many years, and now continues the practice in Washington; Chilion P. Conger, who lives at Ogdensburg, N. Y., and Florence W., who resides in Washington.

THE lack of discipline evinced on board of the French liner La Bourgogne is a national disgrace. It is no palliation to say that the officers went down with the vessel, rather was it a mark of cowardice and a want of executive ability at a trying moment. The French line has generally been spoken of in pleasant terms by Atlantic passengers, but it appears that French politeness in sunshine turns to cowardly brutality and despicable incompetency when daylight evaporates and danger has to be faced. Each officer ought to have been at his boat, well armed and in charge of every motion made and his order, women and children first, obeyed to the letter. The recent holocaust in Paris, showed a similar scramble for life among the best society of France, so that there is every excuse for the poor ignorant sailors getting excited when unguided and deserted by their officers at a critical moment. The brass bound Western ocean French omnibus drivers may hang their heads in shame whenever La Bourgogne is mentioned, and every citizen of France ought to feel a pang of discontent at living under the tri-color until the despicable character of their late countrymen is atoned for or forgotten in the whirl of time.

IN slight damage cases it is not much of a loss for underwriters to pay actual repair bills, but it should always be remembered that the owners stand to lose money also, through detention, etc. In the case of a passenger steamer, where her route can not be promptly and efficiently covered by another boat the loss is still more far reaching, besides rendering the public suspicious of the safety of traveling by water. This feature is just now exemplified in a very marked manner through the loss of the Bourgogne, of the French Atlantic ferry service, and passengers will no doubt shun that line for years to come.

THE Welland, as well as the St. Lawrence system of canals should be open for traffic every day during the season of navigation. A proper observance of the Sabbath day is of course perfectly in order, but there is no sense or reason in requiring any special observance under compulsion. It

must surely be some such measures as observed in the Sunday closing of canals, etc., that keeps the Dominion of Canada so far astern of the commercial advancement and progression witnessed across its borders. Canadian business men generally have the highest mental, moral and commercial attributes, but they are held back and down in some inexplicable manner in the Dominion which has but seven to our seventy millions of population.

REAR-ADMIRAL AMMEN, U. S. N., designer of the ram Katahdin, died this week at an advanced age. The late Admiral had a strong belief in the execution which a powerful ram could do, but there has been no chance of demonstrating the qualities of a ram in our naval squabble with Spain, and they still remain an unknown quantity in modern naval warfare. The same however can be said of torpedo boats and torpedo boat destroyers, in fact the Spanish navy gave us no chance to demonstrate anything, except the value of target practice. The Spanish fleet at Manila might have been toy boats made out of brown paper, while it was a clear game of hare and hounds along the south side of Cuba with the Cervera squadron.

FACILITIES for the handling of freight have kept pace with its growing bulk and with the increased carrying capacity of vessels. The great coal and ore piers at Duluth, Two Harbors, Superior, Ashland, and Marquette on Lake Superior, Escanaba, Chicago and Milwaukee on Lake Michigan, and Cleveland, Fairport, Ashtabula, Conneaut and Buffalo on Lake Erie, and Oswego on Lake Ontario, are without superiors in the world in size and equipment. Cargoes of coarse freight, such as iron ore and coal, are loaded and unloaded with marvelous dispatch, and the same can be said at the shipping and terminal ports where grain is handled, notably at the head of the lakes, Chicago and Buffalo.

THE gas buoys are now being brought into use and placed where they will do the most good. This week's "Notice to Mariners" shows three gas buoys all placed in excellent positions. It is gratifying to THE RECORD to note that our objections of the past season or two have been taken aboard and we no longer hear or read of black gas buoys and red gas buoys; instead, the "notices" read gas buoys painted red or black, etc., as the case may be. Usually it is only necessary to point out these trifling, though ridiculous inaccuracies to have them promptly corrected, at least in so far as the wording goes.

EACH season, and each month during the season of navigation, it becomes more apparent that a number of the older class of vessels must perforce be stuck with their nose or bilge into a soft spot and left there for good and all. The passenger trade is feeling it as well as the cargo carriers, the old day must give way to the new, and the appliances of thirty, twenty or even ten years ago are no longer the facilities of to-day. Small wooden craft are not worth breaking up, but metal boats might possibly fetch a cheap scrap pile, nor is there any means of getting away from the inevitable.

WITH but few exceptions the lake daily newspapers hold on to the ancient way of naming steam vessels. We still have steam barges, propellers and steamers. The first is supposed to tow one or more consorts, all screw steamers are called propellers and side-wheelers, steamers. There are one or two notable exceptions where all vessels under steam are classed as steamers, whether towing, propelled by screw, or side-wheels. This term, though inclusive, is more correct than the old way of defining or naming steam craft.

THE Light-House Board, in giving the location of a gas buoy at the upper end of the Narrows, in the St. Lawrence river, places it about $1\frac{7}{8}$ miles N. E. $\frac{1}{8}$ E. from Cole Shoal (Canadian) light-house. Sailors are usually terrors at decimals and this sixteenth of a point bearing will no doubt keep some of them guessing. Better say N. E. $\frac{1}{2}$ E. nearly, or northerly. How is a sixteenth of a point steered or measured by an ordinary or extraordinary compass as used in general lake practice anyway?

SPECIAL attention is called this week to the recently discovered Minneapolis shoal lying about two miles south of the eleven foot shoal off Point Peninsula. Many owners and masters express surprise that a loaded steamer, or even a centerboard schooner, had not fetched up on this shoal spot long before this as there is less than three fathoms over it and it is nearly on the course between Escanaba and Death's Door passage, a track many vessels use when bound south on Lake Michigan.

LAKE FREIGHTS.

There has been little or no change in the rates of freight or the volume of business done during the past week over that of the several preceding ones, if anything, the recent lack of cargoes on Lake Superior has now been transferred to Lake Michigan, and while grain freights rule at $\frac{3}{4}$ of a cent on corn Lake Michigan to Buffalo, and $1\frac{1}{2}$ cents to Lake Ontario, it is simply because shippers either don't want to, or can't beat it down any lower; the situation, therefore, is still dull and unchanged with the regular line boats carrying the limited consignments of bulk cargo. The Erie canal rate on corn to New York is quoted at $2\frac{1}{2}$ cents, and Toledo to Buffalo 1 cent. The Fort William-Prescott wheat rate at $2\frac{1}{2}$ cents is recorded as the lowest ever known.

Coal rates remain as quoted last week, 20 cents, Lakes Michigan or Superior, with of course increased figures to minor ports, going up say to a maximum of 40 cents to Benton Harbor and shaded or graded all the way down to other small, shoal water ports, where discharging is very slow and vessels must change ports to seek another cargo.

Iron ore is still quoted at 40 cents Escanaba and 45 cents Lake Superior. A number of ore vessels changed ports on Lake Michigan this week and secured grain cargoes at Chicago, which somewhat relieved the situation at Escanaba.

With an early opening of navigation such as we have experienced this season, July is found to be rather a quiet month and while the outlook and prospects for August are said to indicate a more lively time, there is yet a span of dull time to be bridged over by those who, not having made season charters, intend to keep their tonnage moving until freights improve.

NOTICE TO MARINERS.

DOMINION OF CANADA, ONTARIO.

I.—PRIVATE LIGHTS IN RIVER ST. MARY.—I. A fixed white light has been established by Mr. Joseph Rouleau, pilot, to mark the southern edge of the dredged curve opposite the beacon in the upper entrance to the Canadian Canal at Sault Ste. Marie, Ontario. The light is shown from a buoy or float moored near the black spar buoy maintained by the Government.

2. Two range lights have been established by Mr. Rouleau on Big Point, on the American side of the river, in the same alignment as the lights on the Canadian side, to show the axis of the dredged channel above the canal from the American side to the turning point at the beacon.

These lights will be maintained by the pilots and the Canadian Government assumes no responsibility in connection with them.

II.—SHOAL OFF GROS CAP.—The Department of Marine and Fisheries is advised that several vessels, drawing 17 feet or more, have struck an uncharted shoal in the upper or Lake Superior entrance to River St. Mary, between Gros Cap and Point Iroquois.

One master states that the shoal is about a mile and a half above Point Iroquois.

The shoal is on, or a little to the eastward of, the alignment of the private lights known as Bernard's Range.

Masters are advised to keep the range open a little to the westward until abreast of Point Iroquois.

F. GOURDEAU,

Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries, Ottawa, Canada, 30th June, 1898.

All bearings, unless otherwise noted, are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

Pilots, masters, or others interested are earnestly requested to send information of dangers, changes in aids to navigation, notices of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Chief Engineer, Department of Marine and Fisheries, Ottawa, Canada.

TO BRIDGE LAKE ST. CLAIR.

The Secretary of War has given permission for the construction of the proposed embankment, trestle, and draw-bridge of the Rapid Railway across the northwest corner of Lake St. Clair. He says Colonel Lydecker has taken into consideration all objections to the plan of the railway to run a line by that route from Detroit to St. Clair Flats and thence to Port Huron, and after a public hearing finds none of the objections valid. The Rapid Railway will be obliged to place a draw-giving entrance to Anchor Bay at the precise spot designated by the War Department engineers, and will also have to pay for all government inspection, etc. The draw will have to be 125 feet in the clear on each side of the pivot pier. Colonel Lydecker reports that in his judgment the proposed embankment will afford extra shelter and protection to shipping in Anchor Bay in stormy weather.

VESSELS CLASSED.

The American Shipmasters' Association, New York, have classed or rated this week in the "Record of American and Foreign Shipping" the following named vessels: Barge, Silver Brook, owned by the Philadelphia & Reading R. R. Co.; British bark, Northumbria; barkentine, Aureola, and schooner, V. T. H.

WORK AT THE CHICAGO SHIP YARD.

There is now under construction at the yards of the Chicago Ship Building Co., the steel schooner Maia, 3,700 tons, being built to the order of the Minnesota Steamship Co., Cleveland. Her principal dimensions are 390 feet over all, 376 feet keel, 48 feet beam, and 26 feet molded depth. There is also being built to the order of the City of Chicago, a large steel fire-boat, 119 feet over all, 107 feet keel, 24 feet beam, and $12\frac{1}{2}$ feet molded depth. Engines also built by the Chicago Ship Building Co. are double 20 by 20 inch cylinders, and the two boilers 12 feet in diameter by $11\frac{1}{2}$ feet in length are being built by John Mohn & Sons, Chicago.

DULUTH HARBOR WORK.

Maj. Clinton B. Sears, Corps of Engineers, U. S. A., stationed at Duluth, has been officially notified of an appropriation in the sundry civil bill for continuing the improvements under the continuous contract system on Lake Superior.

The bill carried for continuing the improvements at Duluth and Superior the sum of \$770,138, and for continuing the work on the waterway from Keweenaw Bay to Lake Superior the sum of \$410,000.

The amounts are ample to insure prosecuting of the government work at Duluth and Superior and elsewhere on Lake Superior in the most vigorous manner for the entire fiscal year lately entered.

Newspapers at the head of the lakes say that more is now accomplished in a single year on government improvements than was formerly accomplished in several years. This speaks very highly for the engineer officer in charge, and the works on which his recommendations are based.

SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset by reversing the east bearings given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting:

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.			
Sunrise.	Bearing.	Bearing.	
July 16.....	E. 29° N.	N. E. by E. $\frac{3}{8}$ E.	
July 20.....	E. 28° N.	N. E. by E. $\frac{1}{2}$ E.	
July 23.....	E. 27° N.	N. E. by E. $\frac{3}{8}$ E.	
LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.			
Sunrise.	Bearing.	Bearing.	
July 16.....	E. 30° N.	N. E. by E. $\frac{1}{4}$ E.	
July 20.....	E. 29° N.	N. E. by E. $\frac{3}{8}$ E.	
July 23.....	E. 28° N.	N. E. by E. $\frac{1}{2}$ E.	

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.			
Sunrise.	Bearing.	Bearing.	
July 16.....	E. 32° N.	N. E. by E. $\frac{1}{8}$ E.	
July 20.....	E. 30° N.	N. E. by E. $\frac{1}{4}$ E.	
July 23.....	E. 29° N.	N. E. by E. $\frac{3}{8}$ E.	
LAKE SUPERIOR, LAT. 48° N.			
Sunrise.	Bearing.	Bearing.	
July 16.....	E. 33° N.	N. E. by E. $\frac{1}{8}$ E.	
July 20.....	E. 32° N.	N. E. by E. $\frac{1}{4}$ E.	
July 23.....	E. 31° N.	N. E. by E. $\frac{1}{4}$ E.	

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied, will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

LOWERING LAKE FREIGHTS.

Since 1873 the tendency of lake freights has been as steadily downward as the tendency of the dimensions of new vessels has been in the other direction. Lake vessel owners were quick to take advantage of every improvement in machinery, and as fast as the interlake channels were enlarged and deepened, they have used the new depths of the channels to their maximum. The rate on corn from Chicago to Buffalo is $\frac{3}{4}$ of a cent, this is equivalent to $\frac{7}{8}$ of a cent for wheat, and $\frac{5}{8}$ of a cent for oats.

The lowest average rate on corn was reached in 1894, when 1.15 cents per bushel was touched. Last year the average

was 1.44 cents. The official report of the commerce of the Great Lakes for 1897 shows that last year a ton of freight was carried twelve miles for a cent. Referring to this, the Duluth correspondent of the New York Sun declares that this year a ton of freight can be hauled twenty-two miles on the Great Lakes for one cent. In support of this assertion, he says: "The rate for wheat for the 1,000 miles, from Duluth to Buffalo is $1\frac{3}{8}$ cents a bushel, or 45 cents a ton, while iron ore is also carried at 45 cents for a ton. Coal is brought from the lower lakes to Duluth at 20 cents a ton for the 800 or 1,000 miles. This is almost fifty miles for every cent."

The commercial interests of New York are striving to secure the improvement of the Erie canal to a degree more nearly in keeping with the improvements that have been made in lake navigation during the past twenty-five years. Were the canal capable of accommodating much larger boats, the rate on grain going through it to tide-water would be reduced.

STEAMER ARABIAN TO PAY DAMAGES.

Judge Lochern of the United States District Court, St. Paul, Minn., has decided that the Marine Insurance Company is entitled to damages from the steamer Arabian in the sum of \$8,051.20. The Arabian was responsible in a large degree for damages to the schooner Minnedosa, and the insurance company had to settle in full. Three seasons ago the Arabian collided with a lock in the Welland canal, and the collision caused the water to break through and damage the schooner Minnedosa, which was in the lock at the time.

The insurance company then sued the owners of the Arabian for their proportion of the damages, \$8,051.20 and has been awarded as stated.

PLANT OF THE AMERICAN STEEL BARGE CO.

The American Steel Barge Company will soon commence the erection of a brick and stone power house at the West Superior shipyard. This and other improvements that will be made at the same time will call for the expenditure of about \$50,000. The length of the slips is to be increased and all of the present buildings of the plant moved 100 feet south. Among other improvements to be made in the immediate future and upon which the draughtsmen of the company are now working is a new dry dock. The dimensions are not as yet determined, but the company officers state that it will be very considerably larger than the old one and will accommodate any vessel that will ever sail on the Great Lakes.

LARGE BOILER PLATES.

The Illinois Steel Co., at its South Chicago Works, has rolled two of the largest open-hearth steel boiler plates ever made in this country, each of which will be used as the shell surrounding the fire box of a consolidation locomotive.

Each of the finished plates was 124 in. wide, and 220 in. long on one edge, and 237 on the other; the original sheets before the shearing were 128 in. by 360 in. for one, and 130½ in. by 375 in. for the other, while the ingots from which they were rolled had a cross-section of 18 in. by 40 in. The actual gauge of one plate measured at the four corners was 0.577 in., 0.577 in., 0.574 in., and 0.576 in., while at the ends near the middle the gauge was 0.640 in. and 0.623 in.

TREASURY DECISIONS RELATING TO VESSELS.

SPACES ON STEEL VESSELS TO BE MADE BY CUTTING IN THE METAL.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., June 30, 1898.

Sir: Referring to your letter dated the 24th instant, relative to the marking of spaces on steel vessels under the act of March 2, 1895, this office has to state that the spaces should be marked by cutting in the metal.

Respectfully yours,
E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, Bath, Me.

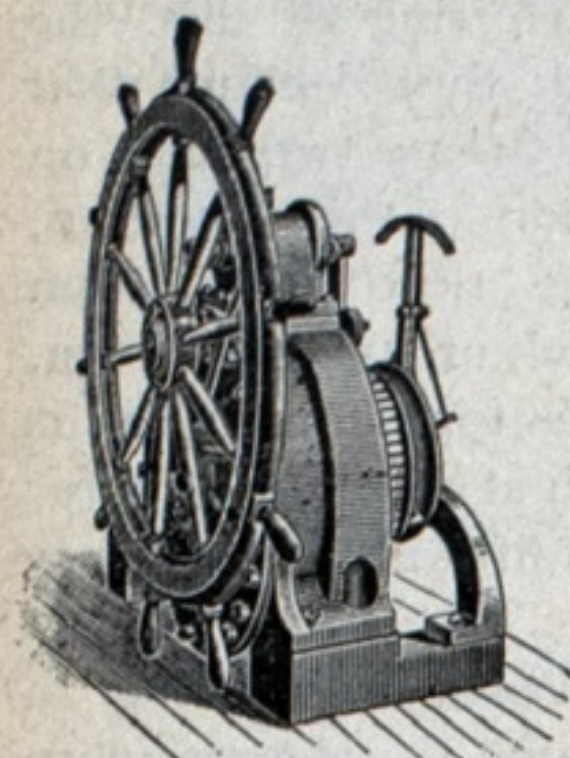
CLEARANCE OF VESSELS.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C. July 1, 1898.

Collector of Customs, Chicago, Ill.: No law authorizes collector to refuse clearance to chartered vessel merely for reason that private persons concerned fail to show stamped charter to collector required by Schedule A of war-revenue act approved June 13, 1898. Attention is invited to section 13 of act.

T. B. SANDERS, Acting Commissioner.

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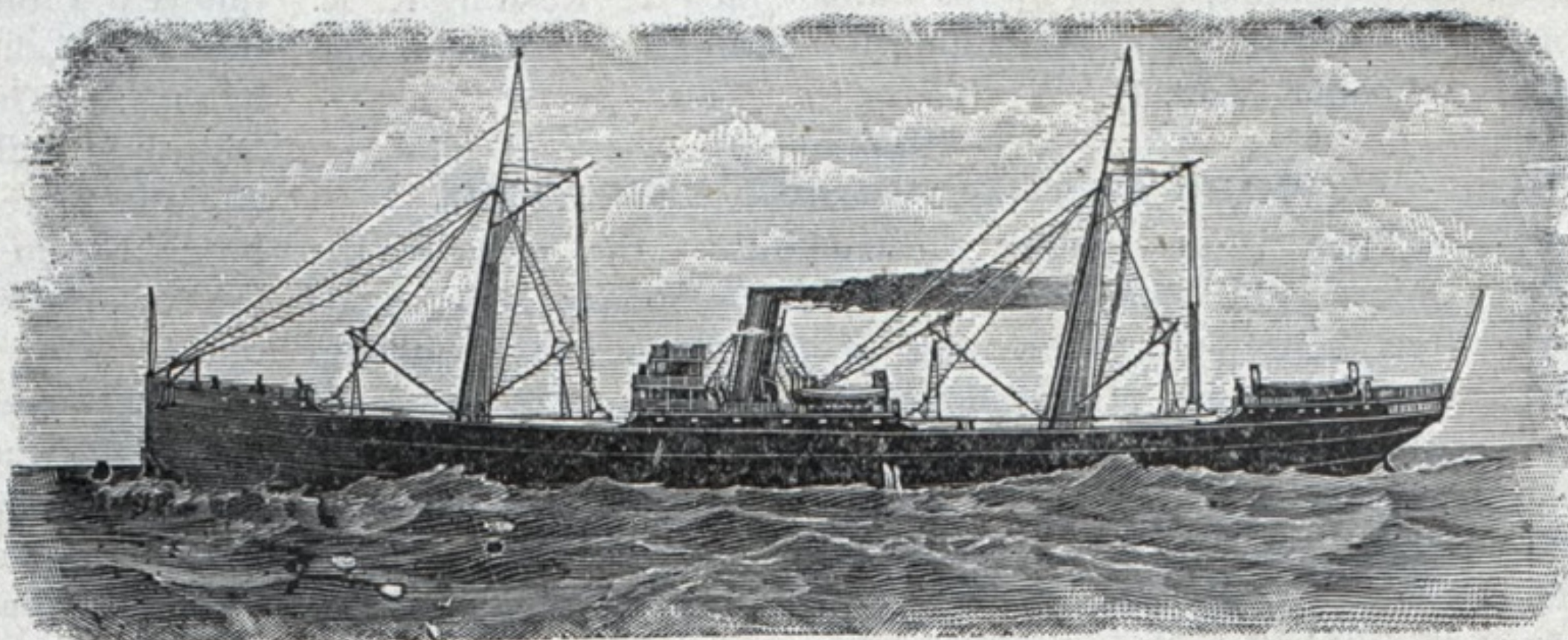
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CORRESPONDENCE.

We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

ARE LAKE CAPTAINS PILOTS OR NAVIGATORS?

CHICAGO, July 12, 1898.

To the Editor of The Marine Record:

The practice of sailing a vessel by the aid of land and sea marks is called piloting, requiring a familiarity with the shore and coast, and all the obstructions and navigable channels in the vicinity.

Navigating is the art of sailing a vessel by chart, log, lead, and compass, requiring a thorough knowledge of all the methods and instruments for finding the place the ship is in, without the aid of land and sea marks.

Consequently there is a great difference between piloting and navigating, and also a great difference between pilots and navigators.

Sailing by land and sea marks is principally required in narrow passages and harbor approaches, not to get grounded. For a navigator on the ocean, to know all the details of every port and passage in every country, it is impossible, except charts containing the leading objects with sailing directions are furnished him. But as such charts and directions are generally wanting, and the leading objects it is for strangers sometimes difficult to find men familiar with them and the hydrography of certain districts have been appointed pilots to guide vessels into and out of port.

Such arrangement, or division of responsibilities is not found on the Great Lakes. Here the man who does the piloting, has also to do the navigating, but lacking scientific training, does it after the manner of piloting, with the result of frequently getting stranded in thick weather, and therefore, is neither a pilot nor a navigator in the common acceptance of the terms.

Sea pilots are appointed for such districts only, with which they are entirely familiar, seldom comprising more than half a dozen ports. But, a lake pilot, with a first-class license, is expected to know all about every port on the Great Lakes, to the number of several hundred, and of the rivers connecting Lake Erie and Lake Superior with Lake Huron besides. His study as pilot, therefore, is a very extensive one, preventing, as it were, his studying navigation. Almost all

his knowledge he picks up on the road, and he has no scientific training, because it is not made compulsory, and nautical schools are wanting. Whatever may come under his observation he takes hold of, and the rest may take care of itself. Although thick weather is his enemy, hiding his aids from view, and thus upsetting all his calculations, he is satisfied that nobody on earth has a better knowledge of navigation than he himself, and experience in this line not gained on the lakes he considers to be of no use. The science of navigation, based upon and verified by the experience of millions of seamen of all nationalities, which would enable him in thick weather to sail without the aid of land and sea marks, where sufficient sea room is left, he regards as a theoretical speculation of doubtful utility, tradition being his hobby.

Thus, all the old notions in sea-faring circles centuries ago have come down inviolate to our time by the agency of the lake captain. Distances are still measured aboard of lake vessels by statute miles, instead of nautical miles. The variation is seldom applied, and the rules of the great-grandfathers are held sacred, some of these rules dating back to a time, when it was supposed that the sum of all angles in a plain triangle was 18 points, instead of 16. (See the solution of the problem to find the distance from an object by bearings 3 points before and 3 points abaft the beam, by an equilateral triangle, published by the Grand Lodge.)

Such and similar fallacies in the mathematics of lake captains have certainly not been conducive to the best interest of lake shipping, and to making modern navigators out of them. Yet the old rules and ways of doing things must be preserved. This conservatism has culminated in the formation of the Grand Lodge, in which everybody is "grand" from the president down to the sentinel and chaplain, and by which every member has been so much exalted as to be proof against the innovations and teachings of modern times.

The highest aim of lake captains is to sail by courses jotted down between any two points, on account of which they always get left as soon as wind and weather changes, especially in fogs; for, the course jotted down, or to be steered, from one point to another, is a variable quantity, depending on the corrections for variation, deviation, leeway and current. As these corrections vary, and the last two generally do, the course to be steered also varies. Neverthe-

less, courses jotted down are treated as standard courses in spite of everything to the contrary.

Of such description is the navigating by lake captains. As pilots they may rank high, but as navigators they are on the very lowest round of the ladder, with few exceptions, and officially are therefore classified as pilots. The laws require no navigators for lake vessels, although their safe-keeping in thick weather does.

Some people fancy that lake vessels are guided by observations of the sun and stars, although it is well known that no instruments for taking such observations are found aboard of any of them. On the lakes, land is never so long out of sight as to render astronomical observations necessary, and there is absolutely no use for sun and stars to find the position of a vessel in fair weather in order to avoid dangers, as coasts, rivers and straits are all well lighted, and lights and the lead are always more trusty guides than sun and stars.

Years of records have shown that it is mostly in thick weather that lake captains fail to keep track of their vessels, and consequently get stranded, because of lacking a thorough knowledge of sailing by chart, log, lead and compass, and of the errors of the methods and instruments they use.

JOHN MAURICE,
Civil Engineer and Nautical Expert.

A LAKE HISTORY.

July 12th, 1898.

To the Editor of The Marine Record:

In a late letter Capt. Charles Gale, of Sombra, Ontario, writes me that he is now inditing the "History of the Great Lakes," and incidentally his own.

There can be no question but that this record (so largely a personal one), will be of great historic value.

For about sixty years Charles Gale sailed the great inland seas of our continent, in all weathers, in all sorts of craft, and I might add in all seasons too.

It follows that the story he will tell is one drawn from his own personal experience and observation, a history of events and of a development, all of which he saw, much of it he was.

His first captain, if I mistake not, was Capt. John McCormick, of the good schooner Adelaide, twenty-five tons burthen, and this huge craft was both a freight carrier and

passenger packet. She was on the route from Buffalo west to Detroit and intermediate ports; this in the earlier thirties.

What vast strides since then in the marine of the Great Lakes, from the stout little craft and her peers of those days, to the North West, North Land, City of Erie, and the floating palaces of the D. & C., S. N. Co., of our own.

No man living, nor do I believe any man dead, has the knowledge of the events themselves nor the facile pen to tell the story, that Capt. Charles Gale wields. Those only who have known the man, and even of those the appreciative few alone, have a just estimate of his extraordinary powers.

He possesses not simply talent, but nature gave him the rare gift of genius, also some "mute inglorious Milton here does rest," for had fortune smiled upon his earlier years and culture brought forth his latent powers, in this man rests the stuff of which poets and orators are made.

To the task then of this writing Capt. Gale brings not simply an exhaustive knowledge of the facts, but all the vim and fire of his complex nature, for to the natural gifts of the thinker, writer, speaker, he adds a power and mode of expression all his own.

This book ought to be in the hands of every sailor on the lakes as surely it will be in the library of every man of intelligence, of every historical society in our lake cities. But let the tale tell its own story in its own way and there is no question as to popular value or historic worth.

F. B. McCORMICK.

AN ENGINEER'S VIEWS.

PORT WING, WIS., June 30.

To the Editor of The Marine Record:

Praise to whom praises are due, and equal rights to all, should be the reward to Hobson and his party. I think Hobson deserves all the credit bestowed on him through Congress and the press, but there are others, and those include the engineers' department. Non-seafaring men would be led to believe that we are living in the sixteenth century, and that our navy consisted of sailing craft, instead of steamers, you hear so very little about the engineers.

From the time, less than sixty years ago, when the first

steam vessel crossed the Atlantic, the evolution of the marine engineer has been rapid, but he is the one class of marine craftsmen above all others that has kept pace with the developments of this vast speeding age, and he stands to-day the most finished product of a century. The marine engineer to-day is more important than any deck officer, but his importance is as little recognized by non-seafaring men and shore officers as his identity is concealed from the view of those who travel in ships. Down in the bowels of a vessel he controls not only the propulsion, but the steering, lighting, pumping, anchorage and ventilation of the modern marine structure, and is even responsible for the manipulation of heavy guns. The eyes that steer the ship are those of the officer on the watch, but the brain that guides or propels her to her destination, and regulates her internal economy is the brain of the marine engineer and his assistants. His is the real responsibility, and he receives the least share of honor and pay of those who serve their country or their employers with courage and devotion on the sea.

All the world heard of Hobson and his companions, and the press and Congress are doing them honor, yet who heard of the struggle in the engineer's department and their machinery down below, where they were liable to be scalded to death by the bursting explosives coming in contact with steam pipes or boilers, even before they had a chance to be drowned like rats, and how many know even their names. It is time there was a change and let the people know the day of the wind-jammers are past, and that the engineers' department control most of the ship, if the facts of the case were acknowledged. Yours truly,

MARINE ENGINEER.

NAMES OF WARSHIPS.

Some of the many Greek and Latin names for British warships have been subjected by sailors to a "sea-change," which made them more modern though less poetic. Bellesophon and Belisarius were good enough for officers and landmen, but the men before the mast preferred "Billy Ruffin" and "Bully Sawyers." Our own sailors have shown considerable activity in the same line, especially as to names of Indian origin. Admiral Porter, writing on this subject

soon after the civil war, said Agamenticus had been quickly turned into "Aggy meant to cuss." The Admiral was inclined to think our Indian names more objectional than those in the classic style; but such titles have at least the advantage of being altogether national, for they are the only strictly American names that could be found. Indeed, they are more suitable than the classic names in every way, for it seems more reasonable to think of a great mass of wood and metal in connection with a mountain like Katahdin or Tacoma than with imaginary nymphs and swains of whom Ovid told pretty stories about two thousand years ago.—William Ward Crane, in July Lippincott's.

A BUSINESS SOLICITOR.

A New York journal sends out to prospective advertisers a card on which is printed:

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AMERICAN SOCIETY OF CIVIL ENGINEERS.

The 30th annual convention will be held in Detroit, July 26 to 29. The headquarters of the convention will be the Fellowcraft Club, and all meetings will be held there. The program calls for the opening session of the convention at 10 o'clock Tuesday morning, July 26. President Alphonse Fteley will deliver the annual address. The next session is put down to begin at 2:30 o'clock, at which time the discussion of papers will begin. At 4:30 there is to be a trolley ride about the city, tendered by the Detroit Electric Railway Co., and at 8 p. m. there will be an excursion upon the river by courtesy of the Detroit, Windsor & Belle Isle Ferry Company.

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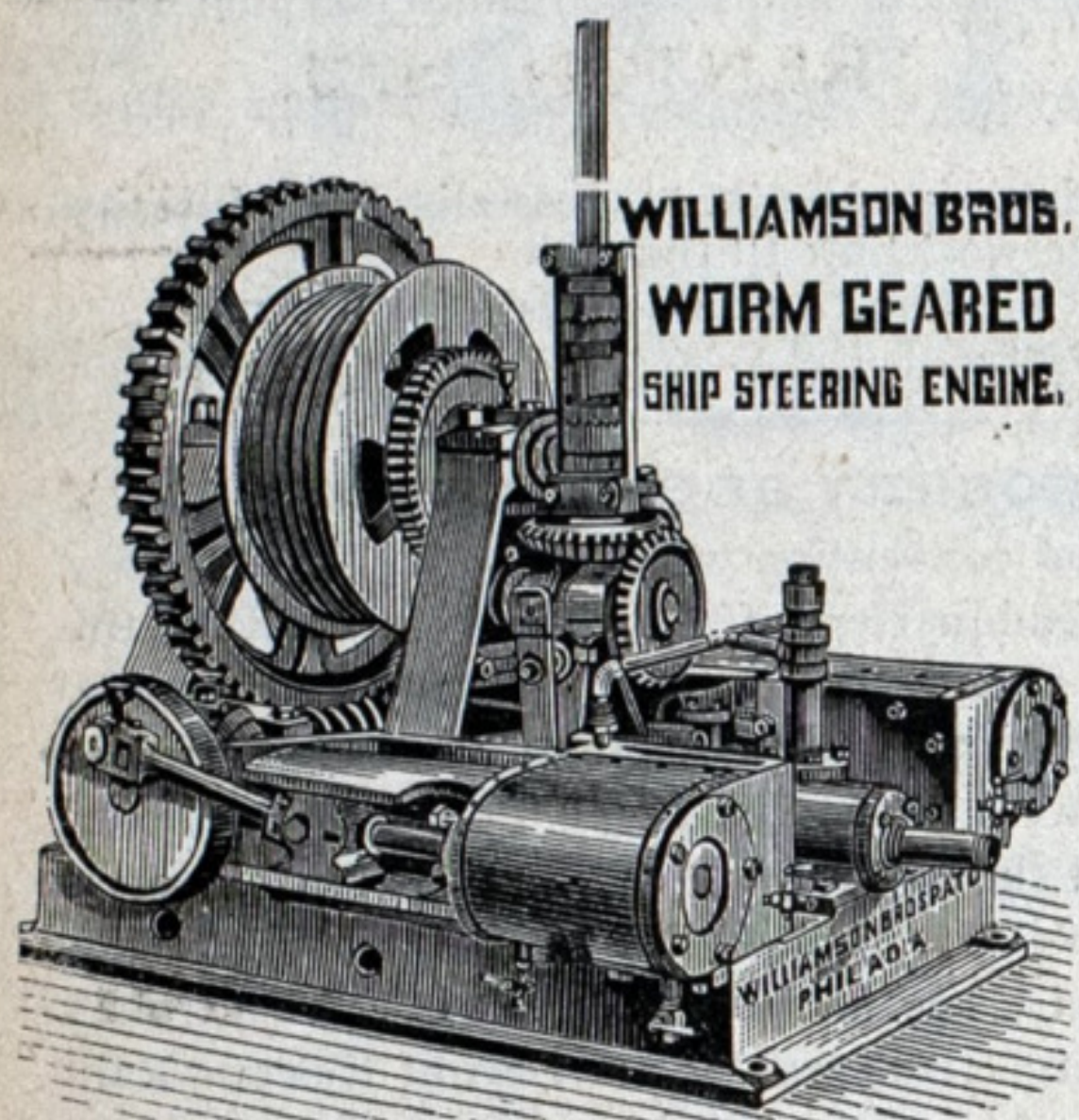
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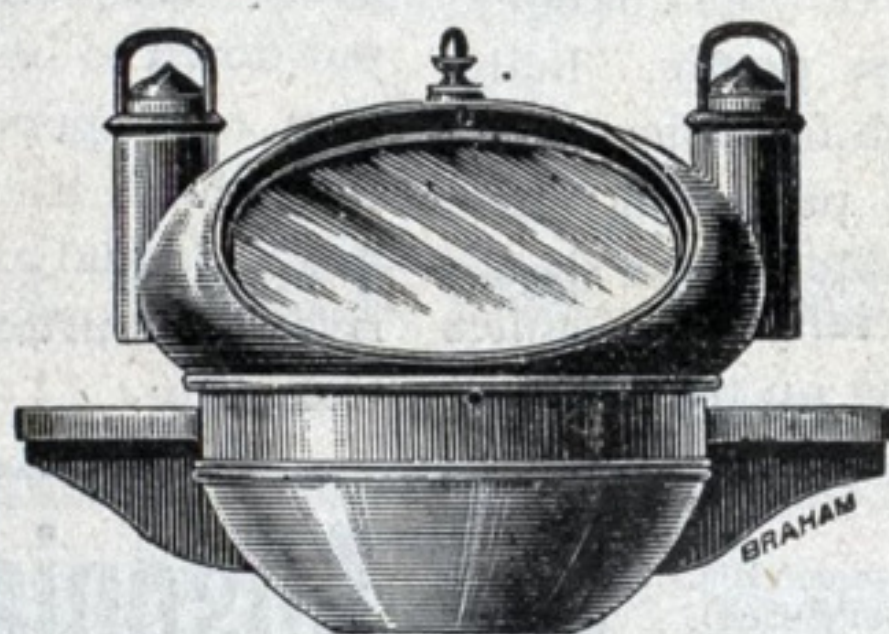
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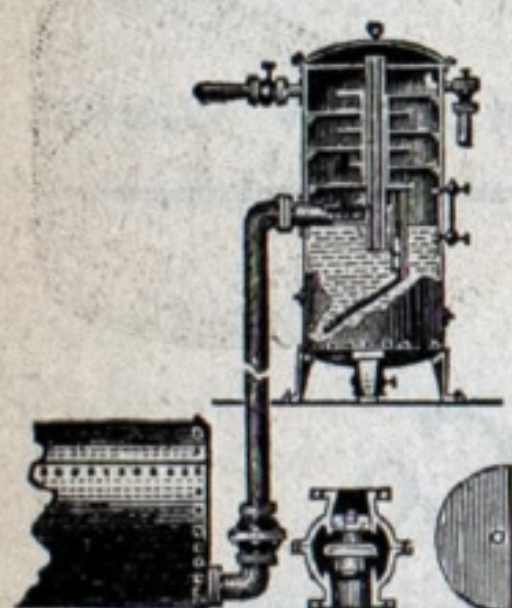
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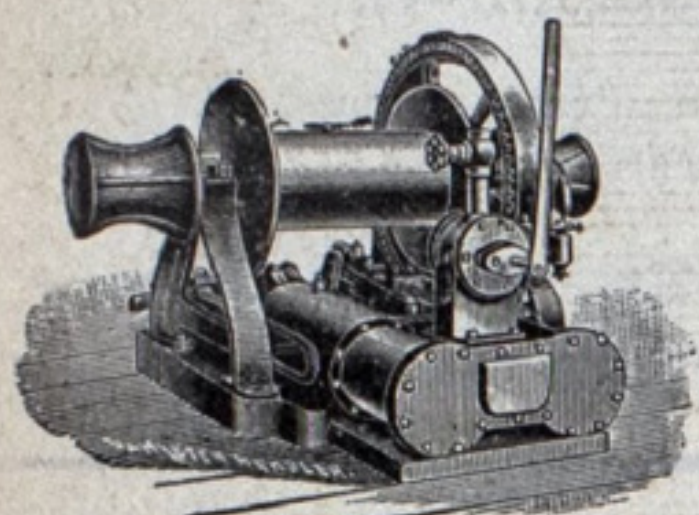
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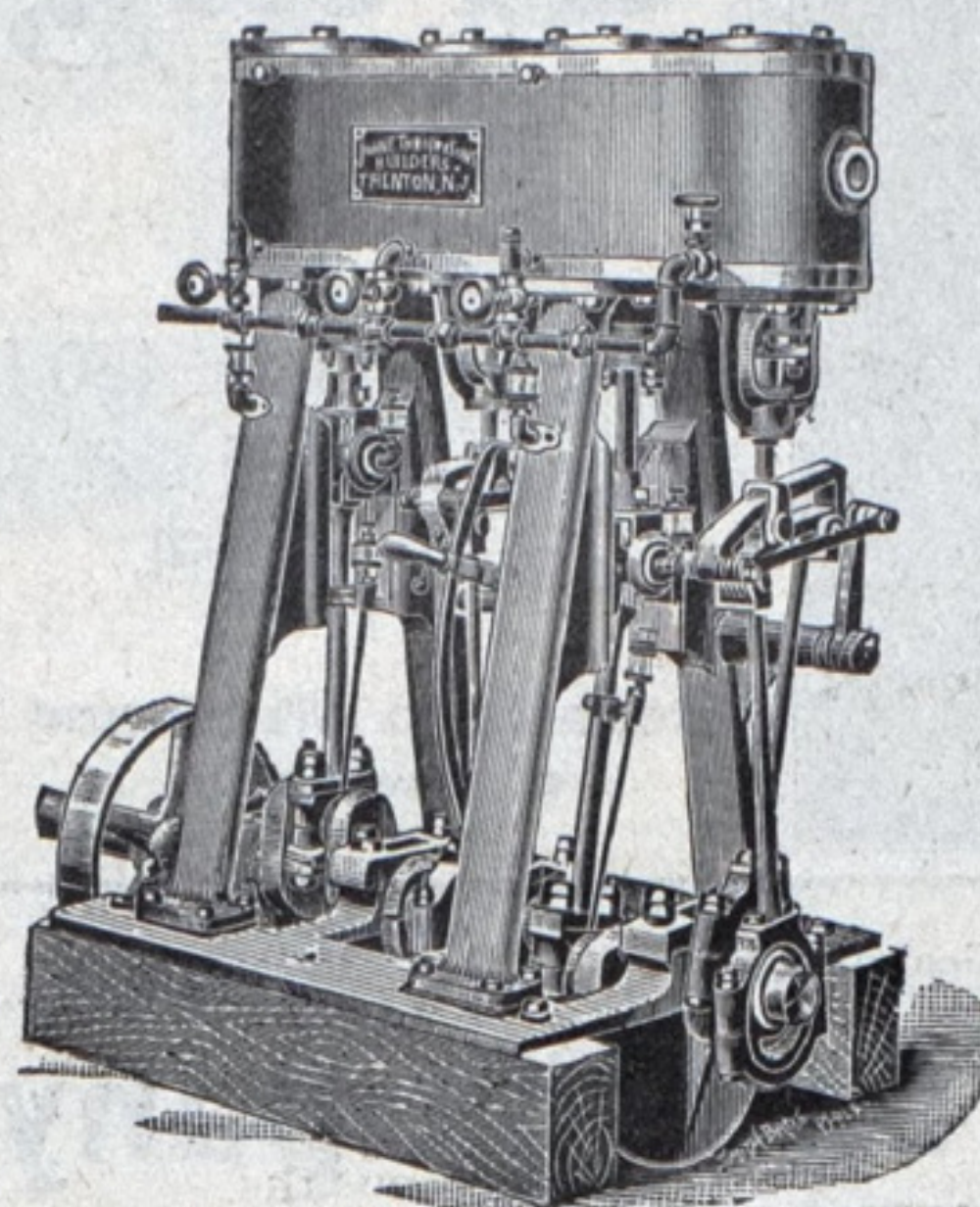
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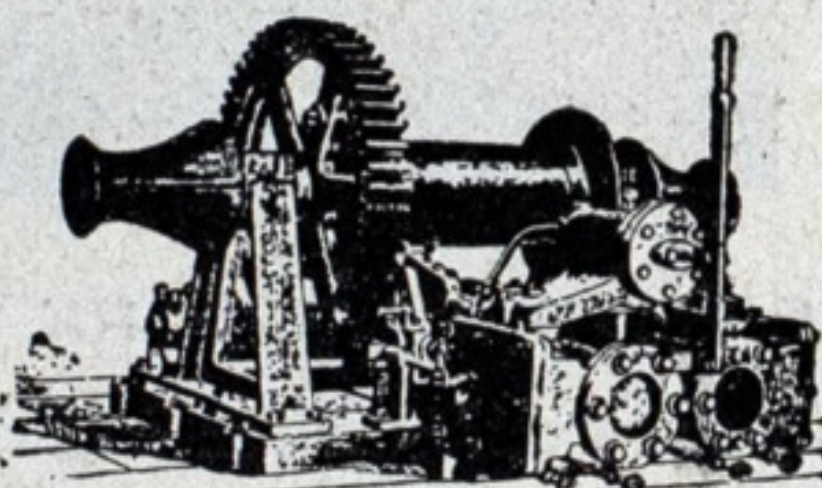
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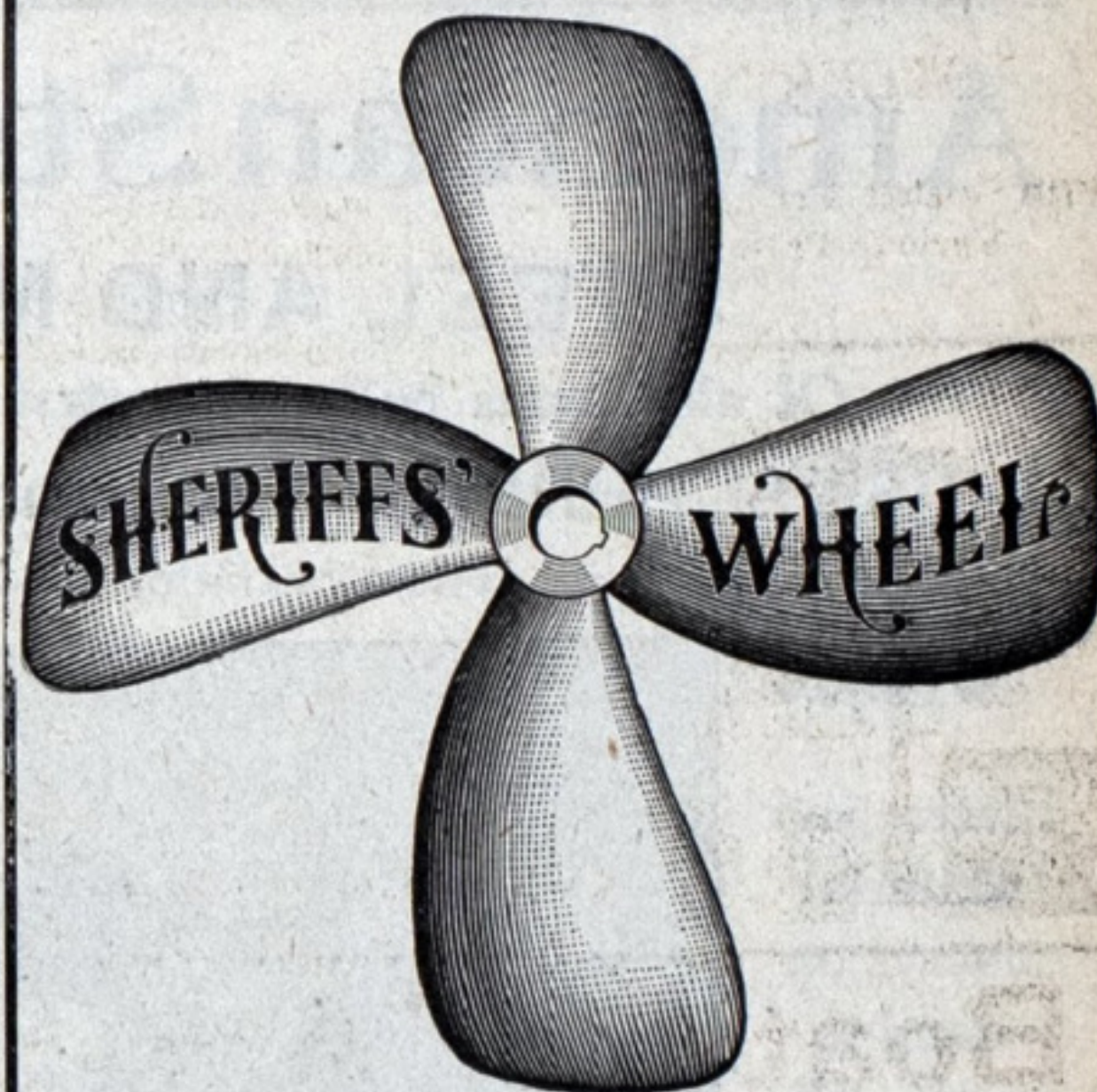
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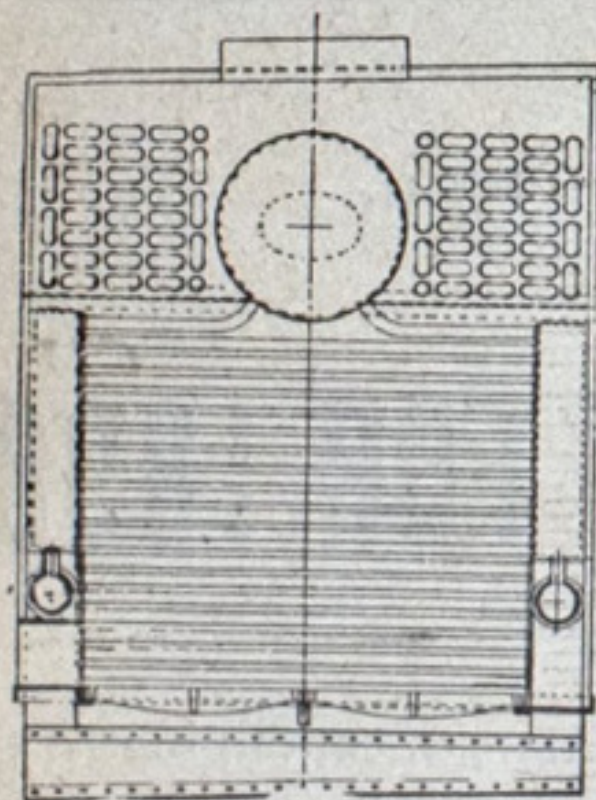
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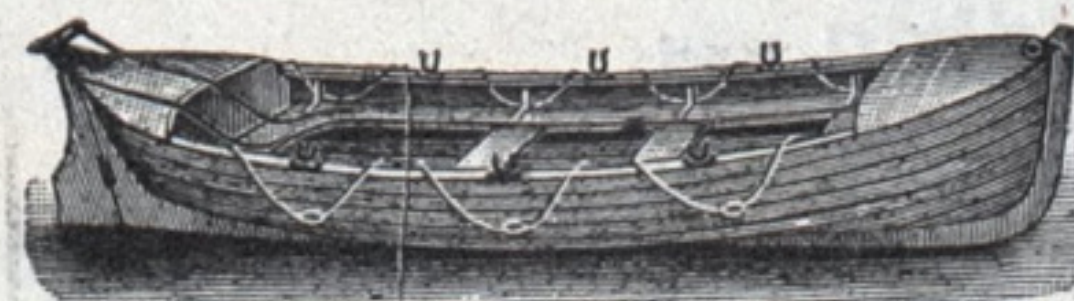
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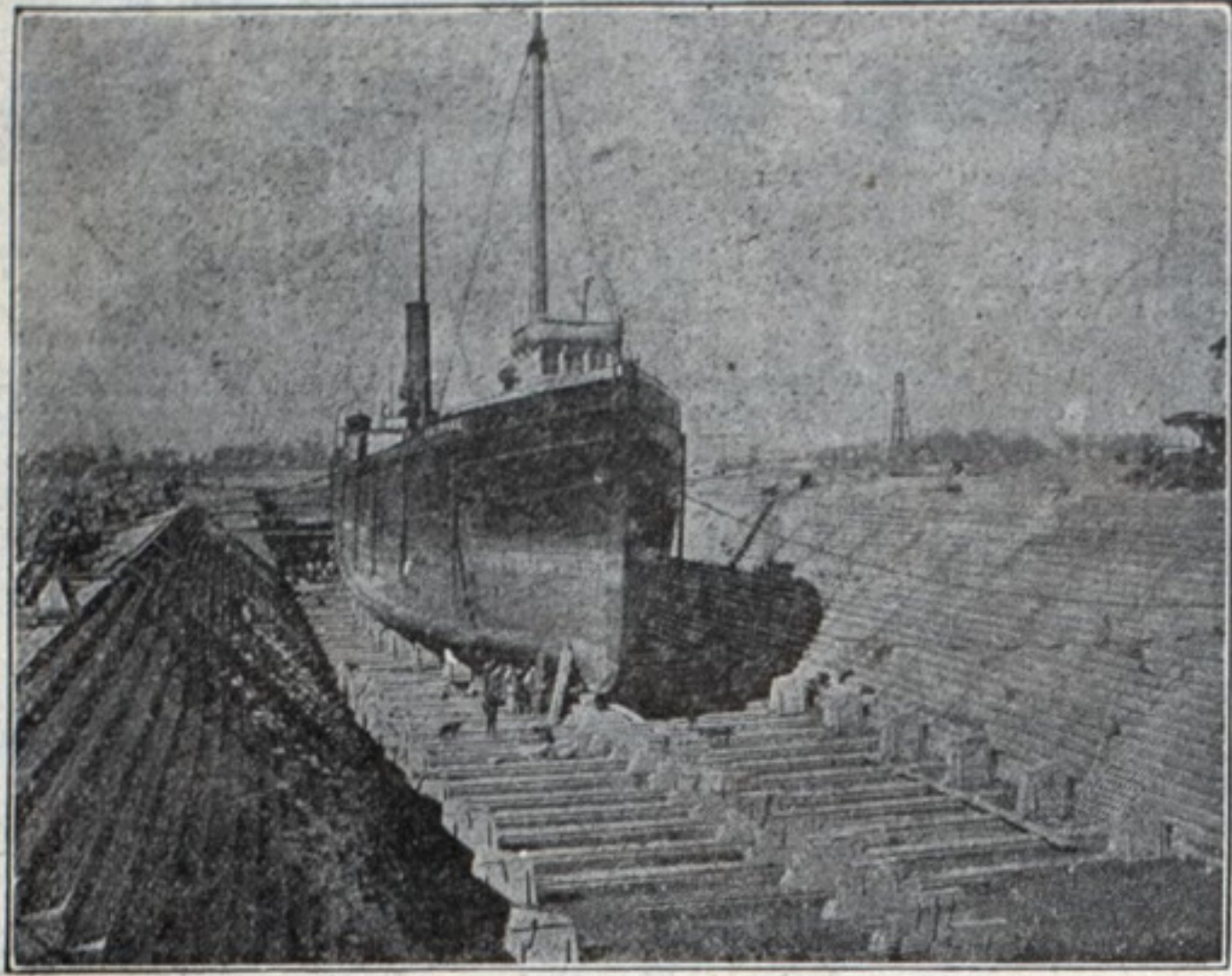
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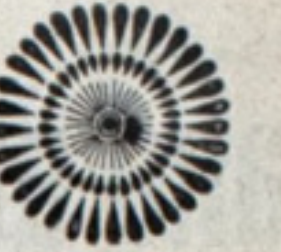
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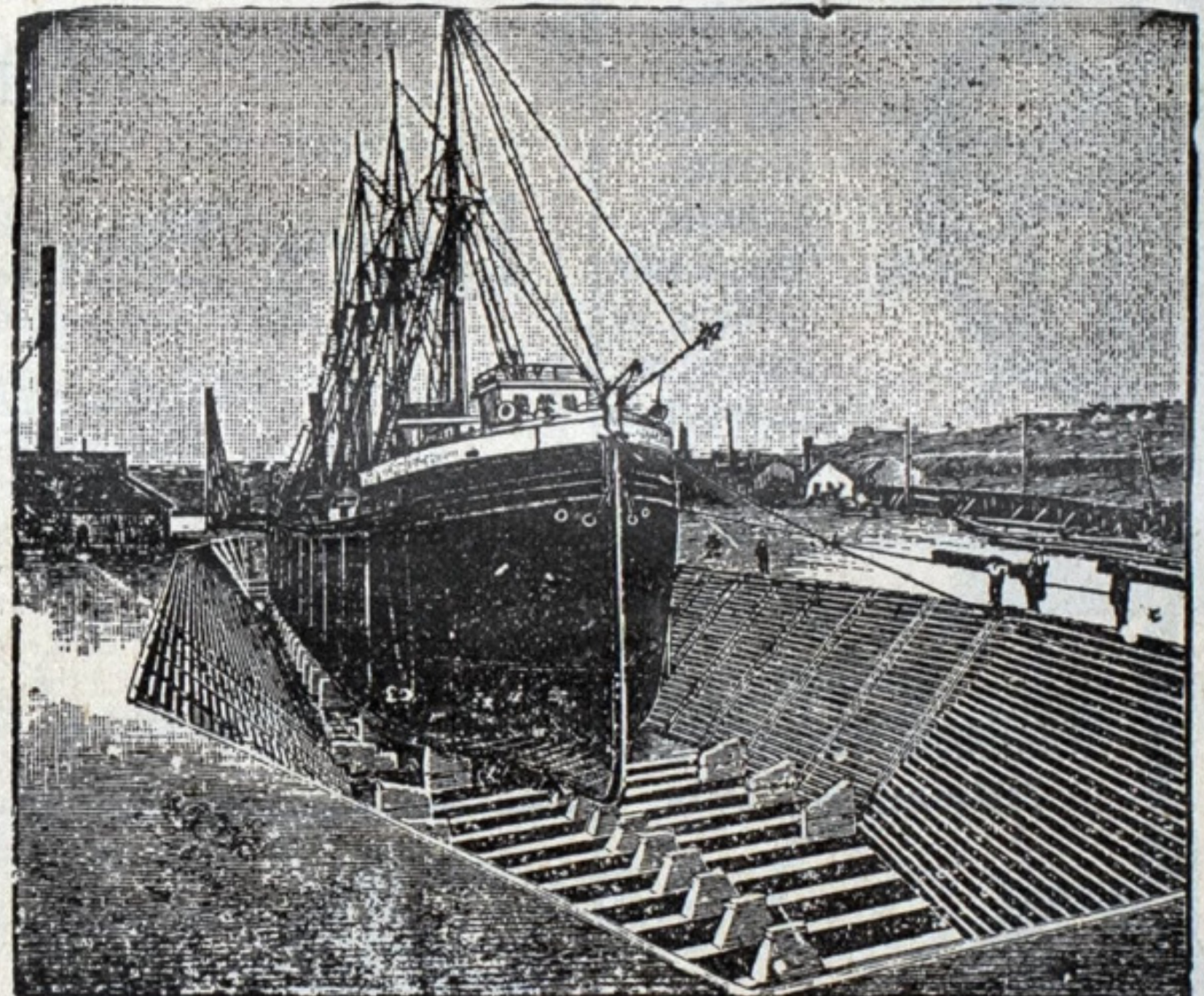
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